

METTLER-TOLEDO GARVENS

X-Series System Manual



Version check:

Version No.	Date
Version 3.0	April 2011
Version 2.0	October 2007
Version 1.0	March 2006

Key data of the checkweigher

Type
Serial number
Year of manufacture
Your Order Number (see specification)
Our Order Number

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This system manual is the original English instructions for use with the X-Series in accordance with Directive 2006/42/EC.

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X-Series System Manual Part 1:

Introduction

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1 About the checkweigher

METTLER TOLEDO Garvens checkweighers offer standard and customized solutions in the fields of checkweighing, material handling and data management. The range of checkweighers and the extensive range of accessories allow for the setup of a weighing system that optimally meets the user's requirements. In its simple version a checkweigher consists of a weighing terminal and a weighframe.

Companies that process and package products use checkweighers to make sure they do not sell too much or too little of the product in question to the end-user.

Checkweighers are also used for statistical analysis in the companies, strict quality control and cost reduction purposes.

The product is weighed while it is on the production line. Classification of each product is carried out in weight zones that have been defined in advance. The product is rejected if it does not lie within the weight specifications.

Checkweighers can carry out weighings while the conveyor moves either continuously or intermittently. The conveyor is not stopped when the product is being weighed in continuous mode. In intermittent mode, the product is stopped briefly on the checkweigher and weighed.

2 Using the system manual

We recommend that this system manual be read carefully before the first use to ensure trouble-free operation of the checkweigher such that you will always get the optimum benefit.

The actual equipment and the available functions of a system depends on the order-specific design of the checkweigher.

All the figures shown in this manual of checkweighers, accessories and functions are examples that are partially optional and that can deviate in your concrete system with regard to design and functional scope.

In addition to the deviations arising from the customized configuration, the further development of checkweigher components, functions and subfunctions may possibly lead to minor differences between your system and this description. These further developments serve to permanently optimize the entire system and do not have any influence on the fundamental functionality that is described in this system manual in principle. Since the functions and operations can differ slightly at a customized design, this system manual is not suitable as a validation document.

Some of the options and functions described in the system manual that do not exist at the checkweigher can be retrofitted. In this case please contact the METTLER TOLEDO Garvens offer-sales service.

2.1 System manual structure

The system manual has a modular structure. The individual manual parts are self-contained documents, adapted to the design of a specific checkweigher or module.

The system manual encompasses the following manual parts:

	Chapter No.	Contents
Part 1		
Introduction	1	About the checkweigher
	2	System manual use and structure
	3	Schematic design of checkweighers
	4	Service and warranty
Part 2		
General safety notes	1	Proper use
	2	Organizational measures
	3	Selecting qualified personnel
	4	Danger identification and safety devices at the checkweigher
	5	Safety notes on certain operation phases
	6	Information on special risks
	7	Safety regulations
	8	Hazardous location use
	9	Important notes concerning the operation
Part 3		
Weighframe	1	Transportation and storage
	2	Overview of the checkweigher
	3	Installation
	4	Cleaning and maintenance
	5	Operating modes
	6	Faults/emergency run
	7	Technical data
Part 4		
Weighing terminal	1	Introduction
	2	Description
	3	Actions (login, terminal cleaning, tare)
	4	Current article (master data, limits, ejector adjustment, dynamic calibration)
	5	Article management Operator: Printing, change article Supervisor: Additionally creating, editing, copying and deleting articles, zone preassignment
	6	Production data
	7	Information (messages, status, system information)

	Chapter No.	Contents
Weighing terminal (contd.)	8	Administration (supervisor access authorization)
	9	Configuration (supervisor access authorization)
	10	Error messages/faults/emergency run
	11	Technical data
Part 5		
Information for administrators	ONLY FOR ADMINISTRATORS:	
	1	Access code conventions
	2	Touch screen calibration
	3	Changing the IP address
	4	Certification test simulation (only for certified check-weighers)
	5	Display of the MID values (only for certified check-weighers)
Part 6		
Options	Mechanical options (e.g. lateral guide railings, top and bottom belt, covers for weighing conveyors, catch bins, pressure-operated switches, paper roll printer, metering disk)	
	Software options (e.g. statistics, tendency regulation, Free-weigh, mean value monitoring, successive errors detection, tare-gross, crosscheck, login server, gliding limits)	
	Note The after-sales service of METTLER TOLEDO Garvens will be pleased to inform you about all the available options.	
Part 7		
Interfaces and data communication	1	Interfaces (weighing terminals and XRTC)
	2	Selection of the data formats
Part 8		
Spare parts list	Overview graphic for localizing the spare parts, list of spare parts with order number and consumables	
Part 9		
Wiring diagrams	Graphics representation of all the connections of the specific weighframe	
Part 10		
Appendix	Documentation of installed subsupplier components such as metal detectors	
Part 11		
Additional operating instructions (if applicable)	Documentation of additional devices, if present	

2.2 Orientation aids

The parts of the system manual are separated by dividers that are followed by the table of contents of the respective part. The page number in the footer is preceded by the number of the respective part. For example, 4–23 corresponds to Page 23 in Part 4 of the system manual of the X-Series.

2.2.1 Warnings

In order to avoid injuries of the user or a third party as well as considerable damages to the metal detection system warnings are emphasized by one of the warn words DANGER, WARNING or CAUTION and by a warning symbol.



- ▲ ... indicates general safety notes that have to be considered for ensuring a safe and regular operation of the weighing unit.

2.2.2 Indicators and symbols

The following signs and symbols are used in this system manual:

Symbol	Explanation
→ or 1. ...	Action step; you have to do something.
✓	Action requirement; condition that has to be fulfilled before you can do something.
Note	Useful information that helps you to operate the weighframe economically or to avoid operating errors.

The names of menus and designations standing in the menu fields are highlighted in **bold** in order to improve the reading flow and identify them clearly.

2.2.3 Example character of screen images and menus

All the screens shown in this system manual are only examples and can deviate from the customized checkweigher that was configured in accordance with your order.

The design of screens and specific sections in the **basic screen** depends on the activation of the associated options. Menu entries depend on the access rights (profiles) and also on the activated software options.

3 Schematic design of checkweighers

In view of the differing requirements a variety of customer-specific device types are possible. E.g. the start/stop push-buttons for the transport belts and the main power switch can be in a different location as shown below, depending on the weighframe design. Usually those weighframes for lightweight goods are equipped with their own infeed and outfeed conveyors.

The following illustrations show the design of checkweighers in various sizes in a simplified manner. Since the checkweighers are configured customer-specifically, there are variants within the sizes that are shown as an example. At Sizes 2 and 3 there are both variants with a wide support frame and belt conveyors and sorting devices built onto it as well as slim variants with columnar control cabinet.

Note

Information about the installation and connection of weighframes is available in the X-Series System Manual Part 3, Chapter 4 "Installation".

**Sizes 2 and 3,
variant with wide
support frame**

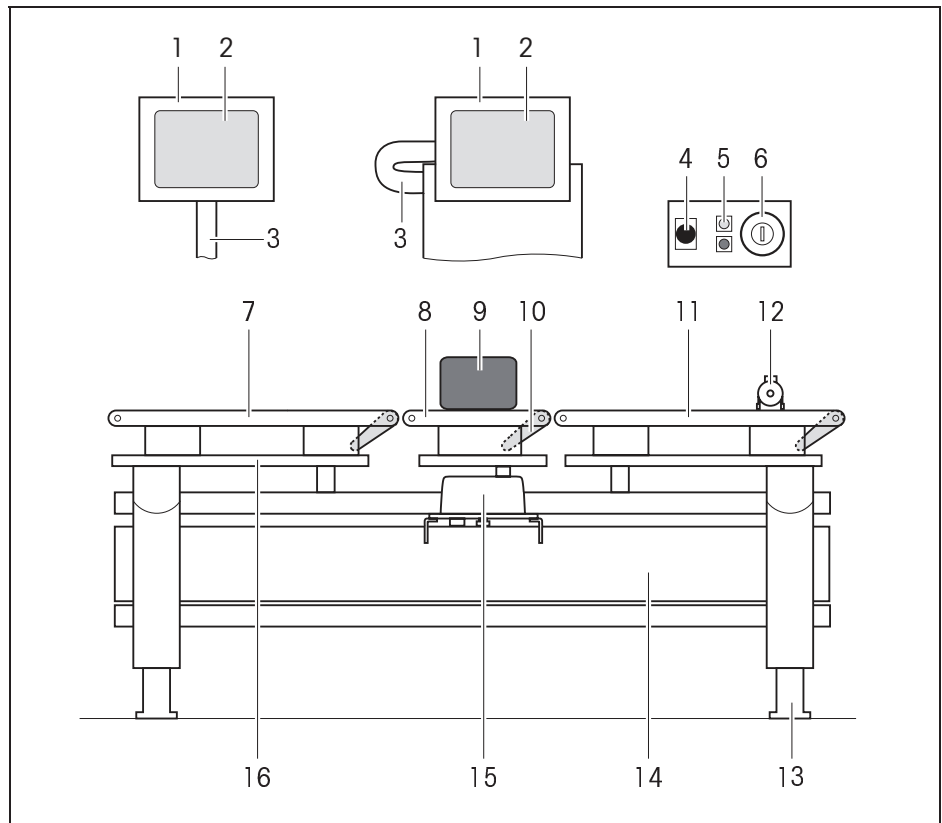


Fig. 1: Schematic design of a checkweigher with wide support frame

- | | |
|------------------------------------|---------------------------------|
| 1 Weighing terminal | 9 Product being weighed |
| 2 Display | 10 Motor/drive |
| 3 Mounting options for the monitor | 11 Outfeed conveyor |
| 4 Emergency-off switch (optional)* | 12 Sorting device (e.g. pusher) |
| 5 Conveyor Start/Stop push-button* | 13 Foot |
| 6 Main power switch* | 14 Baseframe |
| 7 Infeed conveyor | 15 Load cell |
| 8 Weighing conveyor | 16 Conveyor support |

* Depending on device type may be mounted at different positions

**Sizes 2 and 3,
variant with columnar control
cabinet**

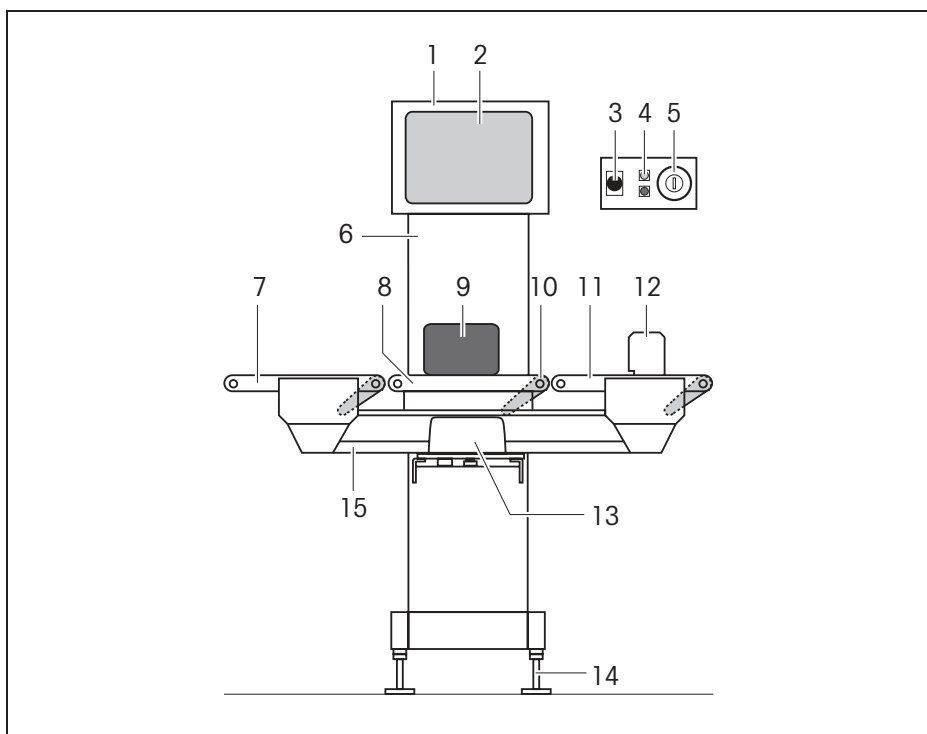


Fig. 2: Schematic design of a checkweigher,
(may deviate from order-specific design)

- | | |
|------------------------------------|---------------------------------|
| 1 Weighing terminal | 9 Product being weighed |
| 2 Display | 10 Motor/drive |
| 3 Emergency-off switch (optional)* | 11 Outfeed conveyor |
| 4 Conveyor Start/Stop push-button* | 12 Sorting device (e.g. pusher) |
| 5 Main power switch* | 13 Load cell |
| 6 Base frame with control cabinet | 14 Footscrew, adjustable |
| 7 Infeed conveyor | 15 Conveyor support |
| 8 Weighing conveyor | |

* Depending on device type may be mounted at different positions

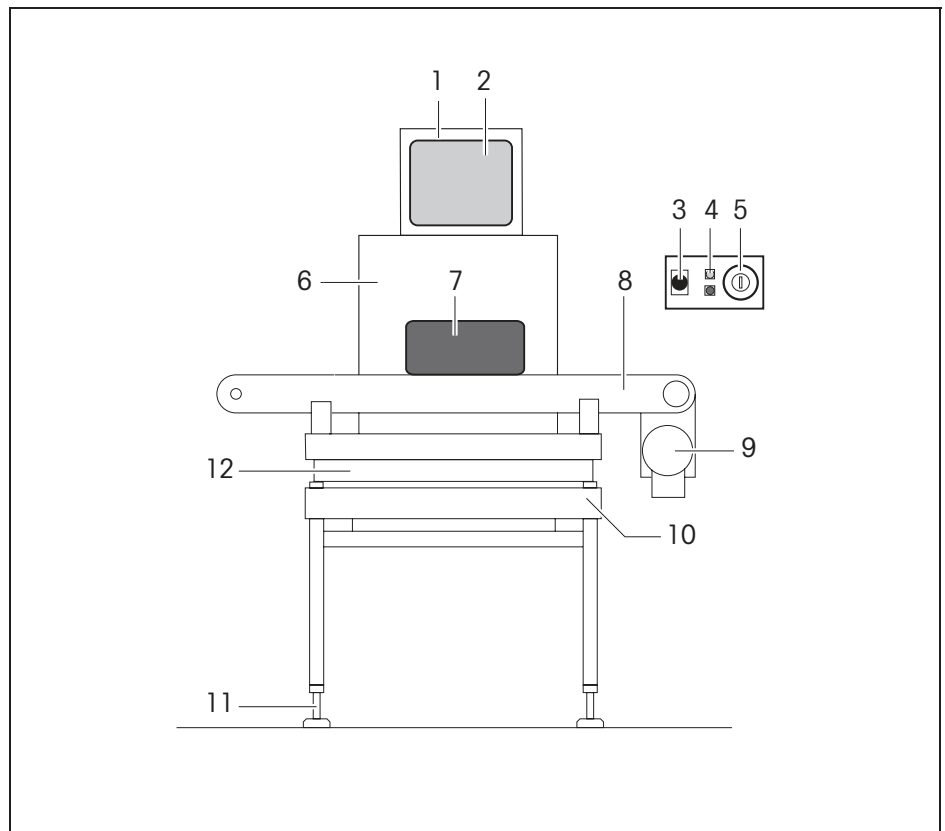
Sizes 40 and 100

Fig. 3: Schematic design of a checkweigher of the Sizes 40 and 100

- | | |
|------------------------------------|-------------------------|
| 1 Weighing terminal | 7 Product being weighed |
| 2 Display | 8 Weighing conveyor |
| 3 Emergency-off switch (optional)* | 9 Motor/drive |
| 4 Conveyor Start/Stop* | 10 Baseframe |
| 5 Main power switch* | 11 Footscrew |
| 6 Control cabinet* | 12 Load cell |

* Depending on device type may be mounted at different positions

NOTE

For detailed information about the interfaces see the **X-Series System Manual Part 7: "Interfaces"**.

4 Service and warranty

4.1 Service

If you wish to contact the after-sales service or the ServiceLine due to persistent problems, please have as much information at hand as possible:

- Type (model)
- Serial number
- Year of manufacture
- METTLER TOLEDO Garvens order number and date (if known)
- Displayed software version of the weighing terminal
- Precise wording of the displayed error message or detailed fault description, respectively

This helps us to avoid delays in helping you.

The following numbers are available for contacting the after-sales service of METTLER TOLEDO Garvens directly:

Phone: +49-5121-933-0
Fax: +49-5121-933-456
ServiceLine: +49-5121-933-160
Service e-mail: service.garvens@mt.com

Further service offers are available on the Internet under:

www.mt.com/garvens

4.2 Spare parts and warranty



Note

Keeping spare parts in stock – i.e. in particular those parts which are normally subject to wear – can help to reduce downtime in the case of a failure. Contact us for advice.

X-Series System Manual Part 2:

General safety notes

The logo graphic consists of a series of parallel diagonal lines that form a triangular shape pointing towards the bottom right. The lines are more densely packed in the center and become more sparse towards the edges.

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1 Proper use

- ▲ The checkweigher has been designed according to the latest technologies in mechanical and electrical engineering and according to recognized safety rules. Nevertheless, the use of this system may imply danger to life and limb of the user or a third party as well as disturbances or damage of the checkweigher and other assets.
- ▲ The checkweigher must be used as intended and only when it is technically in a perfect order, safety rules as well as the operating instructions must be observed in a safety-conscious manner! Any disturbances or faults – in particular those which may affect the safety – must be eliminated immediately.
- ▲ The checkweigher is exclusively suitable for dynamic weighing, or intermittent/static weighing respectively. It is not intended for any other use than this; in particular its use for the transport of persons is forbidden. The manufacturer/distributor cannot be held liable for any damage or injuries which result from improper use. In such a case the user takes own risk.
- ▲ The intended use also implies that the user proceeds in accordance with the operating manual and follows the instructions for inspection and maintenance.
- ▲ Calibration seals applied by the weight and measures authorities must never be broken as this means a loss of the approval!

2 Organizational measures

- ▲ Keep the system manual near the location where the checkweigher is used so that the system manual is always at hand.
- ▲ In addition to the system manual, observe the general rules for the prevention of accidents and all other binding rules or laws for the prevention of accidents and protection of the environment, and ask other staff to do so!
- ▲ State any further duties which may include supervisory tasks or reporting tasks for the sake of the particular organizational situation – e.g. relating to the organization of work, processes, staff – and extend this system manual by such rules.
- ▲ The person to use the checkweigher or to work on it must have read the system manual first, in particular the safety notes manual part. This is especially important for persons who use the checkweigher only occasionally.
- ▲ The personnel should be supervised regularly to ensure that instructions and accident prevention rules of the system manual are observed.
- ▲ The personnel may not have long hair, wear loosely-fitted clothing or jewelry (including rings). Otherwise the person runs the risk of being caught by moving parts.
- ▲ For the sake of safety, all warning signs and symbols on the weighframe must be kept in good condition (check that no such sign or symbol is missing or illegible).
- ▲ For the sake of safety, all warning signs and symbols on the weighframe must always be observed.

- ▲ If there is a fault or a change in the behavior or performance of the weighframe which may affect the safety, the checkweigher must be stopped immediately and the responsible person/supervisor be informed.
- ▲ Do not modify or redesign the weighframe without the prior consent of the manufacturer / distributor, as alterations may affect the safety. This also applies to the installation or adjustment of safety devices and to welding or drilling on bearing parts.
- ▲ Spare parts must comply with the specifications issued by the manufacturer. To ensure this, we recommend that genuine spare parts be used.
- ▲ Should inspection intervals be indicated in the operating manual or otherwise specified, keep such intervals.
- ▲ Suitable tools and other suitable workshop equipment are required for maintenance.

3 Selecting qualified personnel

- ▲ Only reliable persons must be allowed to use the checkweigher or work on it.
- ▲ Use only trained or instructed personnel.
- ▲ Clearly specify the responsibilities of the personnel for operation, preparation, maintenance and repair.
- ▲ Ensure that no unauthorized person uses the checkweigher or works on it.
- ▲ The responsibility of the machine operator must be clearly determined and the machine operator must be enabled to refuse any instructions by a third party if such instructions affect the safety.
- ▲ Personnel that are to be taught, trained or instructed or who are participating in a general training, may only use the checkweigher under the supervision of an experienced person.
- ▲ Only a qualified electrician may work on the electric components of the checkweigher and must supervise any auxiliary staff. Work has to be carried out in accordance with the electrical engineering rules and regulations.

4 Warning labels and safety devices

4.1 Warning and safety labels at the checkweigher

Symbol	Explanation
	Touching forbidden! Danger of crushing or bruises. → Do not touch the sorting device.
	Do not reach into the product flow! Danger of crushing or bruises. → Always keep sufficient safety distance.
 Vor Öffnen des Gehäuses Netzstecker ziehen. Before opening disconnect mains. Avant d'ouvrir l'appareil retirez la fiche mâle.	Warning against dangerous voltage! → Before opening the housing unplug the power plug.

The warning and safety labels are mounted well visible at potentially dangerous positions of the checkweigher, at the control cabinet or at sorting devices.

- Before commissioning the checkweigher familiarize the operating personnel with the potentially dangerous points of the system and point out the meaning of the warning and safety labels.

4.2 Emergency-stop switch (optional)

The emergency-stop switch(es) is / are installed at the control cabinet or at the baseframe so that they are easy to reach.

When the emergency-stop switch is pressed in case of danger the system is stopped immediately:

- Moving parts come to a standstill immediately.
- The system is deenergized.
- The compressed-air supply is switched off and the pressure reduced.

Notes about emergency running and restarting see **X-Series System Manual, Part 3, Chapter 6 "Faults/emergency run"**.

4.3 Behavior in an emergency

- ▲ Initiate the first-aid measures appropriate for the injury.
- ▲ Request qualified medical aid as soon as possible.
- ▲ Protect the injured person against further danger and quieten the person.

5 Safety notes on certain operation phases

5.1 Normal operation

- ▲ Never work in an unsafe or improper manner.
- ▲ Take measures to ensure that the checkweigher is used only when it is in a safe condition and trouble-free.
- ▲ Use the checkweigher only when all protective devices and safety equipment e.g. guards, emergency-off devices (optional), noise absorbers are in the intended locations and operative.
- ▲ Carry out a visual check of the checkweigher at least once during a shift to ensure that visible damages or faults can be recognized. Any occurring changes (including changes in the operating performance) must be reported immediately to the responsible authorities/persons. If necessary, stop and secure the checkweigher.
- ▲ In the case of a malfunction stop the checkweigher immediately and secure it. Have the fault eliminated immediately.
- ▲ For starting and stopping processes and the indicator lamps follow the operating manual.
- ▲ Before switching on or putting into operation the checkweigher, make sure that the running weighframe will not be a danger to anyone.

5.2 Special work, maintenance work as well as fault elimination

- ▲ Observe the adjustment, maintenance and inspection activities and intervals specified in the operating manual, including specifications on replacing parts or part assemblies! This work must be carried out by skilled persons only.
- ▲ Before beginning special work and maintenance work, inform the operating personnel. Determine a supervisor.
- ▲ For any work which concerns the weighframe operation, adaptation to production requirements, conversion or adjustment of the weighframe or its safety devices as well as inspection, maintenance and repair, follow the instructions set out in the operating manual for starting and stopping the weighframe as well as for maintenance.
- ▲ As far as necessary, secure a large area around the maintenance work location.
- ▲ When the checkweigher has been switched off completely for maintenance and repair work, it has to be secured against unintentional or unexpected switching on:
 - Main control devices must be locked and the key removed and/or
 - Place a warning sign next to the main power switch.
- ▲ Only experienced persons must be charged with the hoisting of heavy objects or instructing of drivers of cranes, industrial trucks or other transport vehicles! The directing person must have visual or verbal contact with the driver.

- ▲ For overhead working use safety stages and scaffoldings or other safety devices. Never use the machine parts for climbing or standing on! When maintenance or other work must be effected in greater height, use protective means to prevent you from falling down.
- ▲ Keep all devices, steps, banisters, pedestals, stages, scaffoldings and ladders clean.
- ▲ Before cleaning the weighframe with water or another cleaning solution, cover all openings which must be protected against ingress of water/vapor/cleaning solution for the sake of safety or trouble-free operation, or close them with adhesive tape. In particular electric motors and control cabinets must be protected. Observe the protection class.
- ▲ Remove all covers or adhesive tape when you finished cleaning.
- ▲ After cleaning, check all cables, connectors, compressed air hoses or pipes for leakage, loose connections, rub marks and damage. Clear any fault found immediately/ have any fault found cleared immediately.
- ▲ Remember to fasten all screws and bolts which you had to loosen for maintenance or repair.
- ▲ If setting up, maintenance or repair requires the disassembly of safety devices, the safety devices must be fitted back and thoroughly inspected immediately when the preparation, maintenance or repair has been completed.

6 Information on special risks

6.1 Electricity

- ▲ Only a qualified electrician may work on electric systems, components or process materials and must supervise the staff; and the electrical engineering rules and accident prevention regulations must be observed.
- ▲ If required or stated, the machine and system components must be disconnected from the power supply before inspection, maintenance or repair. First check that the disconnected parts are no longer live, then ground and short-circuit them. Ensure that any live parts which are near them are insulated.
- ▲ The electric equipment of a checkweigher has to be inspected regularly. Any faults – e.g. loose connections or charred cables – must be cleared immediately.

6.2 LaserMarker (option)

- ▲ Use the LaserMarker (optional) for the labeling of product surfaces only in compliance with the safety regulations and the operating manual supplied by the manufacturer.

6.3 Pneumatics

- ▲ Only persons having the required knowledge and experience may work on the compressed air system or components thereof.
- ▲ Check all pipes and lines, hoses and screwed joints regularly for leakage and visible damages. Clear any fault immediately/have any fault cleared immediately.
- ▲ Relieve the pressure of compressed air pipes, hoses or system components to be opened for repair or maintenance before working on them.
- ▲ Compressed air pipes and hoses must be laid and fitted properly. The fittings as well as the length and quality of pipes and hoses must meet the required specifications.

6.4 Noise

- ▲ If required by the applicable noise control legislation, the operator has to ensure that all noise-absorbing elements of the checkweigher are present and in proper position for protection during operation of the system.

6.5 Transport of the checkweigher or the weighframe

- ▲ Use only lifting and transporting devices and equipment with a sufficient bearing force for loading or transporting.
- ▲ Determine an experienced directing person for the lifting/hoisting process.
- ▲ Lift machines correctly with lifting devices in accordance with the operating manual (attachment points for load suspension devices).
- ▲ Only use appropriate means of transportation with lifting capacity; secure load safely.
- ▲ Always disconnect the checkweigher from any external power supply even in case of minor relocations. Before restarting, reconnect the checkweigher properly to the power supply and compressed air supply.
- ▲ Observe the operating manual during restarting.

7 Safety regulations

- ▲ Please check whether the ratings plate of your checkweigher, or weighframe and weighing terminal respectively, corresponds to your power mains before connecting. Some special designs have to be connected to 400 V three-phase current (5-wire network with N and PE).
- ▲ When the weighing terminal is installed away from the weighframe, please check the ratings plate of your weighing terminal. X-series weighing terminals work with a rated voltage of 24 V (DC).





- ▲ No constructional changes may be carried out at the conveyor body. Screwing on or mounting of additional devices or equipment to the conveyor body bears the risk that the checkweigher or conveyor belt units may tilt. In addition, straight running of the transport belt may be lost, resulting in damage to the transport belt and the conveyor body. Please contact the after-sales service of METTLER TOLEDO Garvens if constructional changes are required.
- ▲ The checkweigher is only intended for proper use – as indicated in our order confirmation – meaning the continuous or intermittent weighing of the articles specified in the order confirmation. Any deviating, improper use, will increase the potential danger and is therefore not permitted.
- ▲ If other or unrelated articles are to be weighed or if the ambient conditions of the checkweigher change, contact us for advice. In most cases the checkweigher can be easily adapted or redesigned according to the requirements.

8 Information for the explosion-protected version (option)



- ▲ This chapter provides general information for a checkweigher that is approved for operation in hazardous areas. Special information as well as important certifications (certifications of conformity, certificates, descriptions) are available in **Part 12** of this system manual.
- ▲ When a checkweigher is used in hazardous areas there is an increased danger potential and risk of damage. Explosion-protected checkweighers fulfill a specific equipment category and are correspondingly approved for operation in hazardous areas. See special identification (explosion-protection approval) on the ratings plate of the checkweigher and the declaration of conformity.
- ▲ Particular diligence is required in case of use in such areas. The owner-operator directive ATEX 137 regulates the duties of the owner-operator, such as the installation of the systems (BS EN 60079:14), selection and training of the employees and the updating of the explosion protection document. Country-specific standards and regulations have to be observed.



METTLER-TOLEDO safety concept for explosion protection

The safety concept for explosion protection consists of the following components:

- Observance of the manufacturer directive 94/9/EC (ATEX 95)
- Ignition hazard assessment (BS EN 134631-1) non-electrical equipment
- Ignition hazard assessment (BS EN 1127-1) electrical equipment

The design and construction conditions for the individual ignition protection categories are described in the respective standards (BS EN 60079 and BS EN 13463) and have to be observed by the manufacturer. Mettler-Toledo Garvens GmbH always assesses the checkweigher in accordance with the most recent standards and cooperates with renowned test institutes as well as notified bodies.



9 Important notes concerning the operation

- ▲ The weighcell of the weighframe is a very sensitive precision measuring instrument. It must therefore be handled with care. Shocks, jamming, or objects falling on the weighing belt conveyor (weighing table) must be avoided. Never put tools on the weighing belt conveyor. Never step onto or sit on the weighing conveyor.
- ▲ A regular infeed of the objects to be weighed – i.e. product spacing as regular as possible – is a prerequisite for trouble-free weighing.
- ▲ Observe the information for the following points:
 - Transport preparation (see **X-Series System Manual Part 3: Weighframe**, Chapter 1 "Transportation and storage")
 - Installation (see **X-Series System Manual Part 3: Weighframe**, Chapter 3 "Installation")
 - Cleaning and maintenance (see **X-Series System Manual Part 3: Weighframe**, Chapter 4 "Cleaning and maintenance")
 - Optional equipment (see **X-Series System Manual Part 6: Options**)
- ▲ When the line height of the weighframe is to be changed – for example, because the height of the production line in general is changed – please contact the after-sales service.
- ▲ Please note that the replacement or dismantling of the weighing terminal, weighcell or motors must be done exclusively by after-sales service engineers or qualified personnel authorized by METTLER-TOLEDO Garvens. Contact the after-sales service to this purpose.



Disposing of used weighers

The modular design of the checkweigher allows for easy dismantling so that the individual parts can subsequently be forwarded to the appropriate recycling facilities.

X-Series System Manual Part 3:

Weighframes, Size 100



METTLER TOLEDO

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These are the original English instructions for use.

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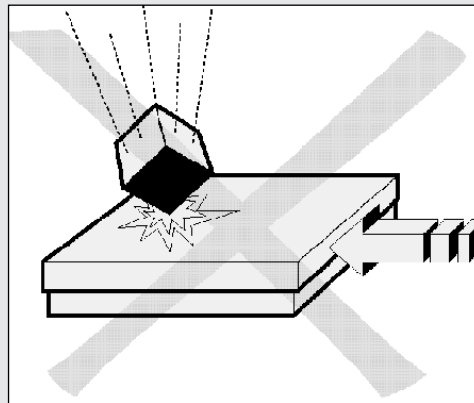
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1 Transport and storage

You should observe the following important points when transporting the weighframe or for storing it.

1.1 Transport of the checkweigher

We recommend you not to unpack the weighframe before you reach the location where the weighframe is to be installed, as the crate protects it. The weighing conveyor is not mounted but packaged separately to prevent the weighing system from getting damaged



- ▲ The weighing conveyor must not be subject to mechanical impact.
 - Avoid bumps to the weighing conveyor!
 - Do not let any objects fall on it!

Later transport

If the crate has already been removed and the weighframe must be transported, hold on to the housing of the weighframe (e.g. the control cabinet) to prevent the weighframe from tilting.

→ Never hold on to the following parts when transporting the checkweigher:

- weighing conveyor
- infeed and outfeed conveyor
- the motors



1. Carefully dismantle the weighframe for longer transports (see chapter 3.4 "Dismounting the weighframe" in this part of the system manual).
2. Thoroughly and professionally package the weighframe in order to prevent property damage.



The weight of a weighframe is considerable, and the center of mass (gravity) varies corresponding to the customized design. We therefore cannot give recommendations for specific lifting points offhand. More detailed information about the center of gravity (i.e. specific to the system ordered) is available in the accompanying papers – in as far as required.

1.2 Transport preparation

1. Switch off the weighframe and have it disconnected from the power supply (mains) by a qualified electrician.
When the weighframe or weighing system is equipped ex works with an infeed or an outfeed conveyor on separate support frames power is usually supplied to such belt conveyors from electric terminals inside the weighframe's base. To shut off the weighframe in this case, prior to adjusting or relocating an infeed or outfeed conveyor, proceed as follows:
 - Have the cable connections to the infeed or outfeed conveyor disconnected by a qualified electrician.
2. Dismount the weighframe as described in chapter 3.4 "Dismounting the weighframe" and package the weighframe carefully.



1.3 How to store the weighframe, accessories and spare parts

- Until the weighframe is to be installed, leave it in its original crate, upright, in a clean and dry room.
- Keep all electronic parts that are supplied in anti-static pouches in the latter until they are used. This will protect them best.

2 Overview of a checkweigher

In view of the differing requirements a variety of customer-specific designs are possible, e.g. the start/stop push-buttons for the transport belts and the main power switch can be in a different location as shown below, depending on the weighframe design. The weighframe can be supplied with an optional infeed and/or outfeed conveyor.

The following illustration shows the design of a checkweigher in a simplified manner:

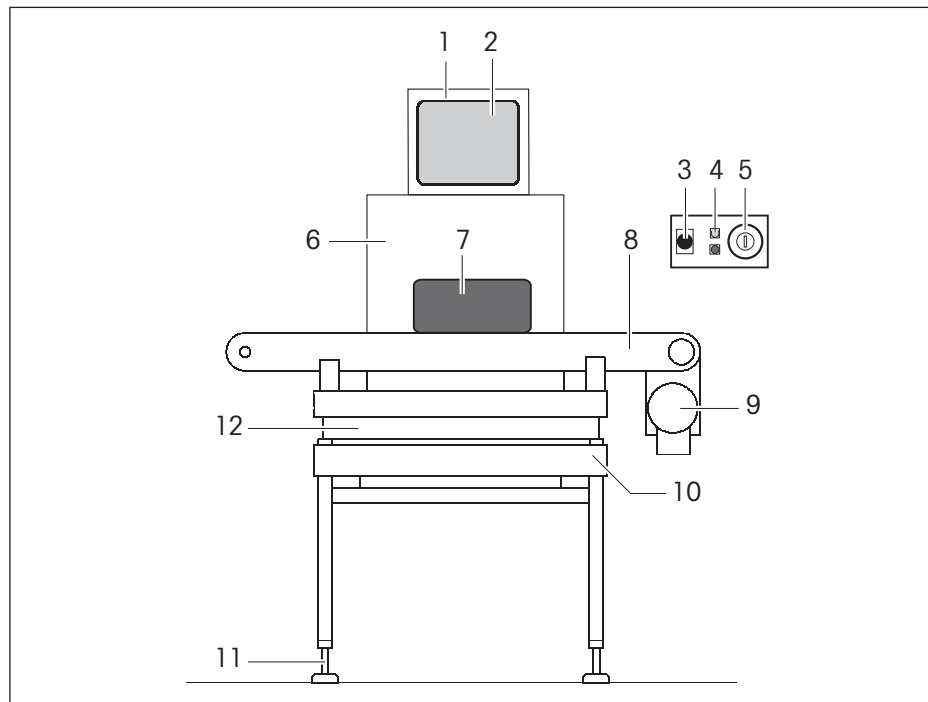


Fig. 1: Schematic design of a checkweigher,
(may deviate from order-specific design)

- | | |
|------------------------------------|-------------------------|
| 1 Weighing terminal | 7 Product being weighed |
| 2 Display | 8 Weighing conveyor |
| 3 Emergency-off switch (optional)* | 9 Motor/drive system |
| 4 Conveyor Start/Stop* | 10 Baseframe |
| 5 Main power switch* | 11 Footscrew |
| 6 Control cabinet* | 12 Load cell |

* Depending on customised design type may be mounted at different positions

Note

Information about the mechanical and electrical installation of weighframes can be found in chapter 3 "Installation" in this part of the system manual.

The following figure shows examples of size 100 weighframes:

Version with terminal XE**Version with terminal XS**

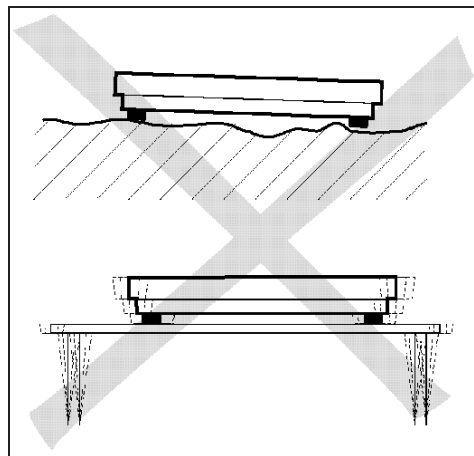
3 Installation

The following points should be observed as they are important when installing or uninstalling the checkweigher. These are described below. We recommend that you remove the crate only after the device has reached its final location.

3.1 Mechanical installation of the weighframe

3.1.1 Setting up the weighframe

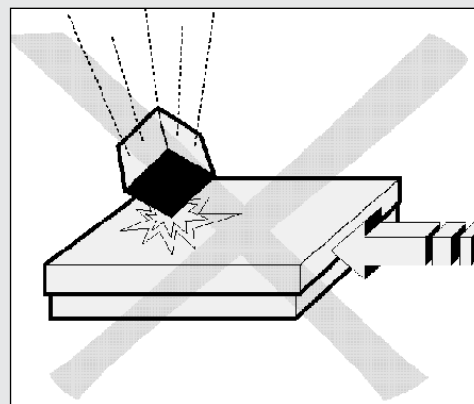
1. Prepare the setup location



Choose a place where the weighframe is not subject to noticeable vibrations.

Fig. 2: Checkweigher location requirements

2. Take the weighframe to the place where it is to be installed.
3. Put the weighframe gently down and carefully remove the protective crate.



- Do not place any tools onto the weighing conveyor!
- Do not drop any objects on the weighing conveyor!
- Do not step onto the weighing conveyor!
- Do not lift the conveyor support or the weighing conveyor!

3.1.2 Remove the transport lock

In order to avoid mechanical damage to the weighing system during transportation, the load pan of the load cell that is located under the weighing conveyor is lifted in the factory by means of four M16 threaded rods so that the load cell is free of load during transportation.

**Transport lock –
Weighframe with force-
compensation
load cell**

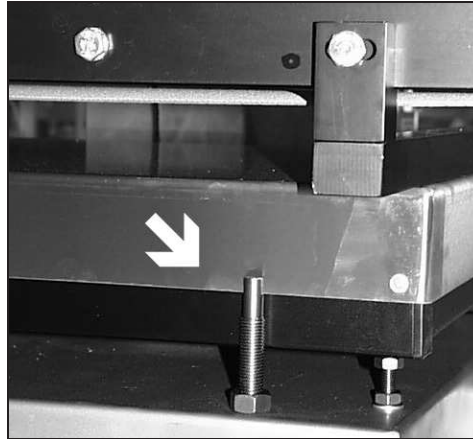


Fig. 3: Secured state

Remove this transport lock as follows in order to lower the load pan:



Fig. 4: Loosening the lock nuts

1. Loosen the lock nuts at the lower ends of all four threaded rods slightly.

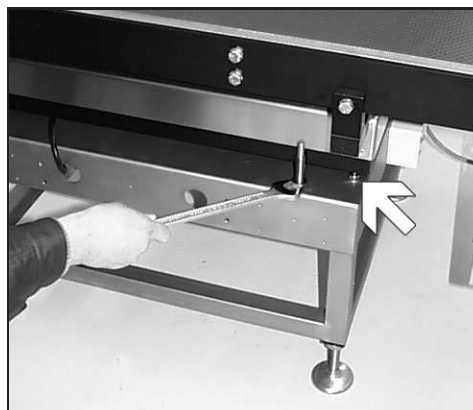


Fig. 5: Lowering the threaded rods

2. Turn the upper nut that is located on the frame at each of the four threaded rods so that the threaded rod is lowered.

CAUTION

- Under no circumstances loosen or adjust the M10 load cell fixations (small threaded rods in the four corners, see arrow).

4. Lower the threaded rods so far until there is a gap about a finger wide between the load pan and the threaded rod.

Note

Under no circumstances may the threaded rods contact the load pan of the load cell since weighing otherwise becomes imprecise.

5. Tighten the lock nuts lightly against the frame in order to prevent vibration of threaded rods and nuts during operation.

**Transport lock –
Weighframe with strain gauge
load cell**

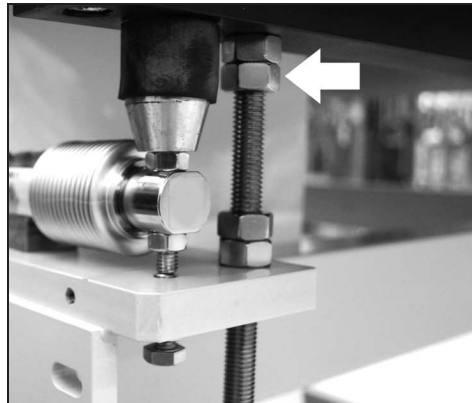


Fig. 6: Transport lock in secured state

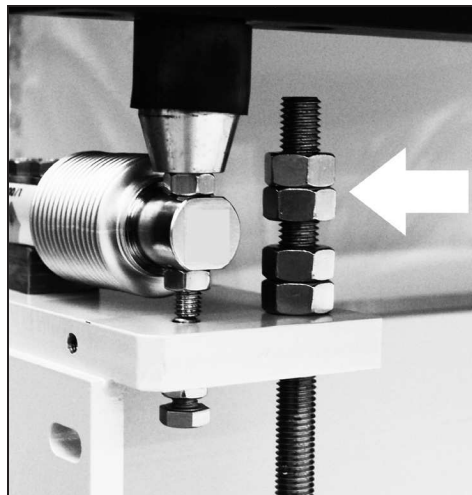


Fig. 7: Transport lock released

Note

In contrast to the force-compensation load cell, in case of the strain gauge load cell the conveyor body of the weighing conveyor is pressed upward by a few millimeters by four threaded rods for transportation so that the load cells are relieved from any load impact.

1. Loosen the lock nuts at the upper ends of all four threaded rods.
2. Lower the threaded rods until the conveyor body rests on the load cells.

3.1.3 Aligning the weighframe



1. Align the weighframe with the upstream and downstream belt conveyors, in as far as they exist, in a straight line and adjust them to the same height using the adjustable footscrews. Use the bubble level at the weighframe as an aid.
2. Secure the footscrews by tightening the lock nuts.
In the case of footscrews with bracket we recommend that the brackets of all the feet be screwed to the floor.

Note

When installing sorting devices that have a baseframe of their own, or when installing sorting devices that have a single stand (pillar), make sure to screw the footcups or the footplate, respectively, to the floor. This will reduce disturbing vibrations.

3. Check that the upstream and downstream belt conveyors or the optional infeed and outfeed conveyors have been adjusted to the same height as the weighframe and are aligned so that the weighing conveyor is completely free.

**Note**

The weighing conveyor must be completely free to move. It must neither touch the infeed nor the outfeed conveyor.

4. Only for the version with an optional sorting device (pusher): Connect the compressed air hose of the checkweigher to the pneumatic system (approx. 6 bar). Check the manometer indication: max. 10 bars!

3.2 Electrical installation



→ Connect the weighframe to the main power supply.

3.3 Accessories

The mounting of optional equipment e.g. draught cover for the weighing conveyor is described in the **X-Series System Manual Part 6: Options**.

3.4 Dismounting the weighframe



1. Turn the nuts lying on the frame at each of the four threaded rods until the slot at the upper end of the threaded rod meshes into the edge of the load pan of the load cell.
2. Turn the nuts contacting the frame by the same amount of rotations at each of the four threaded rods further until the load pan with the weighing conveyor has been lifted evenly by approx. 10 mm.
3. Secure each threaded rod by tightening the respective lock nut from below.

4 Cleaning and maintenance



The cleaning work and simple maintenance work described below may be carried out by technical personnel having sufficient expertise.

4.1 Visual check and cleaning of the weighframe

Recommended inspection interval	What is to be done?
Daily	→ General visual check of the weighframe



→ Clean weighframe and weighing terminal with a soft cloth, moistened with a mild solution of water and a detergent, e.g. a usual household detergent for glass and plastic.

4.2 Visual check and cleaning of light barriers

Recommended inspection interval	What is to be done?
Weekly	→ General visual check → If necessary, clean the light barriers

Note

Always keep light barriers (light sensors, photocells, reflectors, if any) clean. Dust, dirt or condensation on the optical parts may cause malfunctions.

- If necessary, wipe the light barriers with a soft, slightly moist clean cloth or a cotton swab.

4.3 Visual check of gaskets/seals

Recommended inspection interval	What is to be done?
Monthly	→ General visual check → If necessary, replace gaskets/seals

- Ensure that the seals of covers such as doors and flaps, or gaskets of optional indicator light glasses (caps) are in a good condition.

4.4 Check of the compressed air supply

Compressed air must always be clean and dry; otherwise the function of pneumatic parts (e.g. pushers or swing gates) may be affected and excessive wear of these parts may be caused.

Recommended inspection interval	What is to be done?
Weekly	→ General visual check → Check of the compressed air supply

1. Regularly check the compressed air supply.
2. Regularly check the pressure hose leading to the weighframe.
3. Have damaged or worn connecting hoses replaced immediately.
4. Check the manometer for the correct pressure setting:
6 bar (maximum 10 bar!).

Checking the inspection glass

Regularly check the inspection glass of the water separator on the compressed air inlet of the system.

Recommended inspection interval	What is to be done?
Monthly	→ General visual inspection of the inspection glass → Draining the condensate



1. If condensate has accumulated in the inspection glass, turn off the compressed air supply, loosen the drain screw – located at the bottom of the inspection glass – and remove it and let the condensate drain into a container.
2. After draining, put the screw back in and tighten it by hand.

4.5 Check of the belt conveyors

4.5.1 Cleaning the transport belts and checking their wear

Keep the belt conveyors and transition plates (if any) clean at all times.

Recommended inspection interval	What is to be done?
Daily	→ General visual inspection of the belt conveyors → Replace worn belts immediately

- Wipe transport belts (and any transition plates) with a soft, moist cloth using a mild solution of water and a detergent, e.g. a usual household detergent for glass and plastic.
This helps keeping the glide plates under the belts clean and smooth.
- Regularly check protection devices (if present) to ensure that they fit correctly and are in proper condition.

Note

There are no parts or points on the belt conveyors that require lubrication.



4.5.2 Checking the tension of the transport belts

Most belt types expand a little during use.

Recommended inspection interval	What is to be done?
Weekly	→ Check the transport belts for sufficient belt tension

The following indications can be used to check the belt tension:

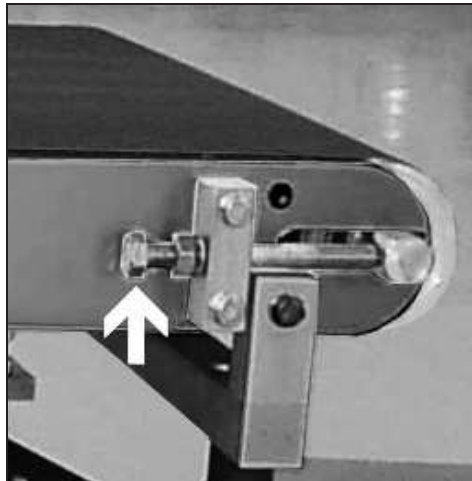
- If the outer edge area of the belt curves lightly upwards by itself, the belt is no longer sufficiently tensioned.
- A clear indication for a slack transport belt is slipping of the running belt at normal loads (i.e. when a typical product is put on the conveyor).

4.5.3 Retensioning the transport belt

Notes

- Tension the belts with the belt tensioning devices only as much as it is necessary to prevent slip of the transport belt when they are charged with a usual load. Excessive tensioning will cause rapid wear of the belts and at the deflection roller bearings.
- The transport belts have to run centered and straight.
- For retensioning of a transport belt the conveyor body does **not** have to be dismantled.

METTLER TOLEDO Garvens recommends an annual inspection of the conveyor system – rollers, belts, etc. – by the after sales-service.



1. If there is a transition plate to the neighboring belt conveyor, unscrew and remove the plate.
2. Turn the two belt tensioning screws (M12) clockwise one full turn each. This increases the belt tension as the deflection roller is pulled outward further by the tensioning screws.
Repeat this step if necessary.

Fig. 8: Belt tensioning screws

Notes

- If you fail to retension both sides to the same extent, the belt will not run centered and straight afterwards.
 - If the sufficiently tensioned running belt "wanders" to one side, turn the tensioning screw at the opposite side slightly clockwise.
 - If the belt is not tensioned sufficiently yet and the running belt "wanders" to one side, the belt tensioning screw can be turned slightly clockwise on this side until the belt runs straight.
3. Remount all the parts that were removed beforehand.

4.5.4 Replacing the transport belt



1. De-energize the checkweigher and disconnect from the power supply.
2. Have the motor cable in the control cabinet of the weighframe disconnected by a qualified electrician.
3. If there is a transition plate to the neighboring belt conveyor, unscrew and remove the plate.

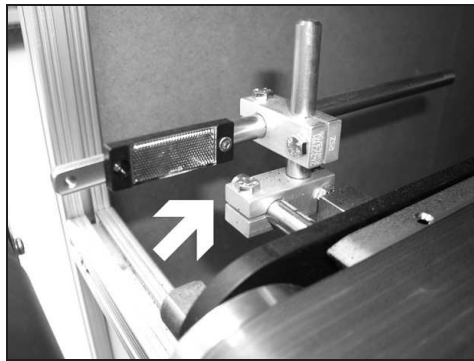


Fig. 9: Light barrier holder

4. Use a wrench to loosen the lower clamping piece (see arrow) of the light barrier holder from the horizontal rod and remove the light barrier holder.

Ensure that the light barrier holder is not bent since the correct reflector alignment is a decisive factor for perfect functioning of the light barrier.



Fig. 10: M10 screwed connections

5. Unscrew the four M10 hex head screws at the side of the conveyor body support and lay them to one side.

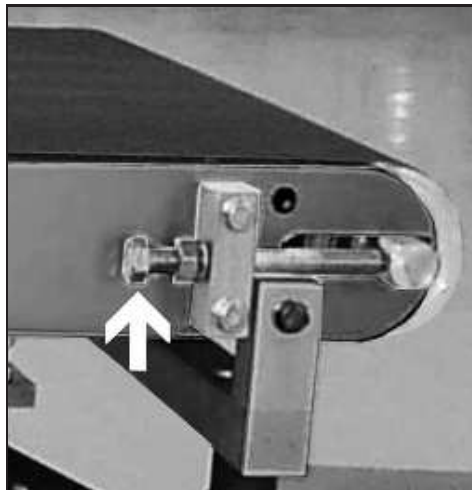


Fig. 11: Belt tensioning screw

6. Turn the M12 belt tensioning screws (see arrow) slightly counterclockwise in order to slacken the transport belt.

Note

When the checkweigher is put back into operation later, straight running of the transport belt should be controlled several times at short intervals within the first 24 operating hours and if necessary be adjusted using the two belt tensioning screws at the idle roller.

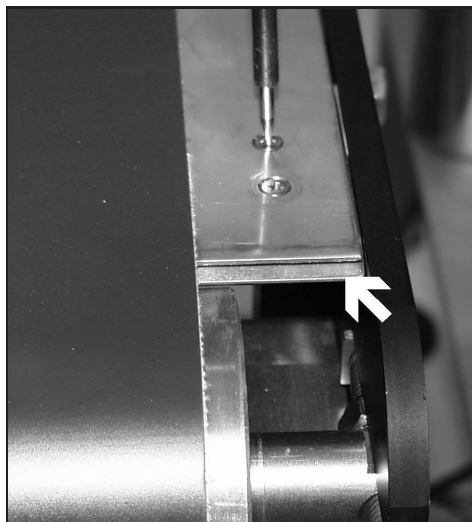


Fig. 12: Protective guard at the idle roller

7. On the upper side of the conveyor body, on the right and left next to the idle roller, loosen each of the two M4 countersunk head screws of the adjustable protective guards slightly and push the two protective guards backward away from the roller.

If necessary, push or pull the transport belt slightly to the side.





8. Grip the conveyor body at both ends and lift it straight upward out of the four conveyor body supports.
9. Lay the conveyor body on a flat and even surface, such as on a sufficiently sturdy workbench, with the bottom of the weighing conveyor facing upward.

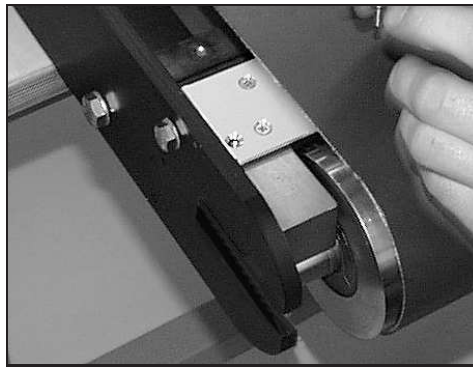


Fig. 13: Protective guard under the belt (close-up)

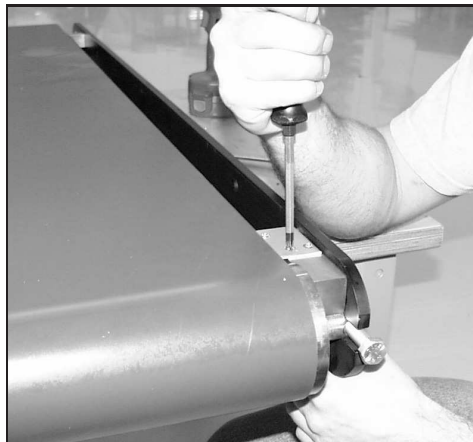


Fig. 14: Loosening the fixation of the protective guard under the belt



Fig. 15: Conveyor body upright

10. Loosen the M4 cross-tip counter-sunk head screws of the protective guard fixation, carefully pull out the protective guard that runs under the belt sideways and lay it on one side.

11. Place the conveyor body carefully upright with the motor facing downwards on a clean flat surface. The drive and idle roller must be positioned upright.
12. Have the conveyor body held by a second person.



Fig. 16: Securing the roller against falling out

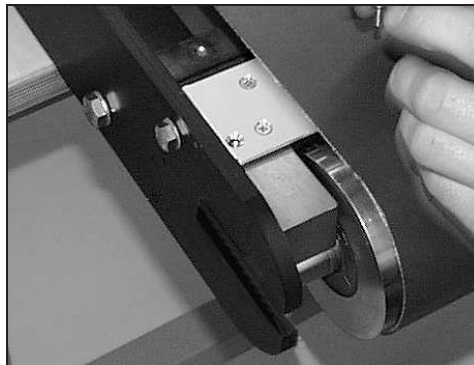


Fig. 17: Protective guard under the transport belt



Fig. 18: Protective guard under the transport belt

13. Pull the transport belt carefully out upwards.

CAUTION

Deflection rollers are only positioned loosely in the side parts and can be damaged if they fall out.

- Ensure that the deflection rollers do not fall out after removing the transport belt.
14. Hold the idle roller in the conveyor body and pull on the new transport belt.

15. Together with a second person lay the conveyor body carefully down flat with the bottom facing upward.
16. Place the protective guard behind the idle roller and screw the cover "loosely" to the conveyor body.
17. Tighten the countersunk screws at every side of the protective guard. To do so, push the transport belt slightly to the side.
18. Together with a second person lift up the conveyor body and place it carefully on the load cell. Be sure not to bump or impact the load cell.

19. Screw back in the four hex head screws M10 for the conveyor body screwed connection at the sides and tighten them by hand using a wrench.
20. Completely mount all the parts that were previously removed.
21. Tension the transport belt, see chapter 4.5.3.

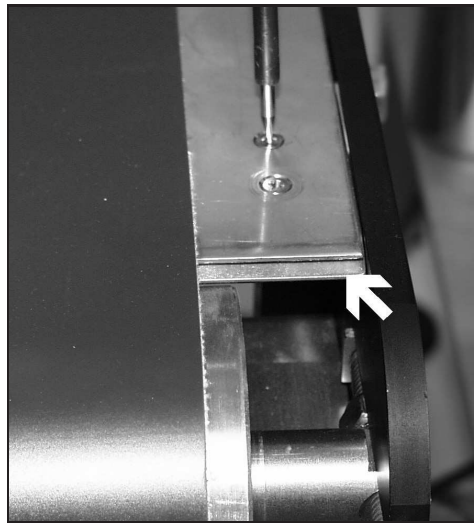


Fig. 19: Protective guard at the idle roller

22. Set the two protective guards on the conveyor body top at the right and left next to the idle roller back to "minimum gap".
If necessary, push the transport belt slightly to the side.
23. Tighten the two M4 countersunk head screws of each protective guard again.

Check the belt tension of the newly mounted original spare belt.

The horizontal distance of the idle roller axes from the edge of the side part should be the same on both sides of the idle roller.

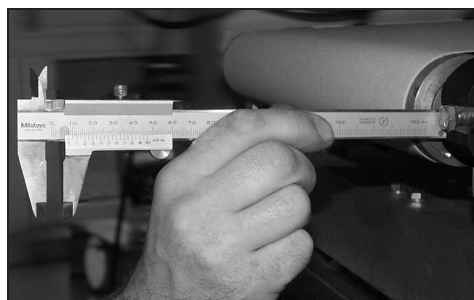


Fig. 20: Same distance on both sides

24. Use a gauge to measure the distance.
If the distance on one side is smaller than on the other side, the idle roller stands slightly askew.
25. If necessary, correct the tensioning screw correspondingly.
26. Finally have the motor cable in the control cabinet of the weighframe reconnected by a qualified electrician.

Note

The cable coming from the weighing conveyor motor may not be laid too tight. It must be suspended freely, without contacting or lying onto anything.

27. After re-commissioning check the running belt and if necessary re-tension, see chapter 4.5.3.

4.6 Replacing the drive roller or idle roller

4.6.1 Replacing the idle roller

1. Remove the belt conveyor as described in chapter 4.5.4 and take off the idle roller.
2. Insert the new idle roller into the conveyor body and pull the transport belt back on, see chapter 4.5.4.
3. Tension transport belt, see chapter chapter 4.5.3, and check for straight, centered run.

4.6.2 Replacing the drive roller

The drive roller must always be replaced completely with its flanged bearings.

Note

Special know-how and skills are required to replace the drive roller.

→ Please contact our after-sales service.

4.7 Checking/retensioning the toothed belt and checking the two pulleys

Recommended inspection interval	What is to be done?
Monthly or after a maximum of 250 hours of operation	→ Check the toothed belt and toothed belt tension → Replace worn toothed belts immediately → Check the pulleys

4.7.1 Checking the toothed belt and pulleys



Fig. 21: Toothed belt cover

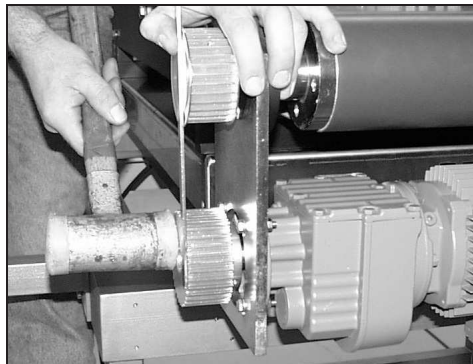


Fig. 22: Pulleys of drive roller and motor

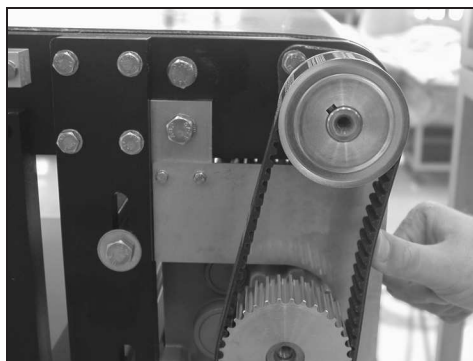


Fig. 23: Checking the toothed belt tension

1. Loosen the two crosstip screws of the drive cover (one at the top, one at the bottom of the cover) as well as the two lateral hexagon screws and remove the cover plate.
2. Carefully remove visible soiling from the toothed belt and from the two pulleys using a clean dry brush.
3. Check the pulley of the drive roller: It has to lie exactly flush with the pulley at the motor, i.e. the two pulleys have to be positioned centered over each other.
If the two pulleys do not lie flush, see chapter 4.7.4.
4. Ensure that the toothed belt does not rub against anything and no teeth are missing at the inner side of the toothed belt. If necessary, replace the toothed belt.
5. Check the tension of the toothed belt.

Note

For maximum durability of the toothed belt:

The toothed belt may not sag in the middle (half way between the pulleys) by more than 5 mm, but at least by 2–3 mm when pressed with the thumb.

4.7.2 Retensioning the toothed belt

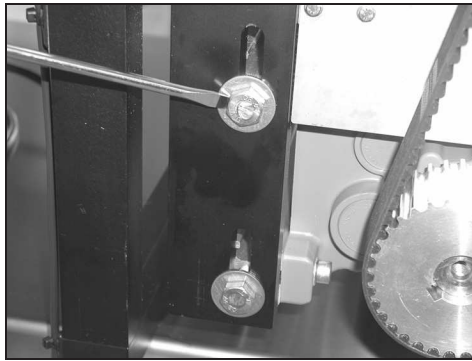


Fig. 24: Motor fixation with oblong holes

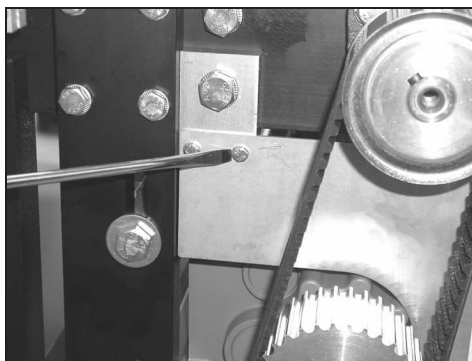


Fig. 25: Screws of the protective guard

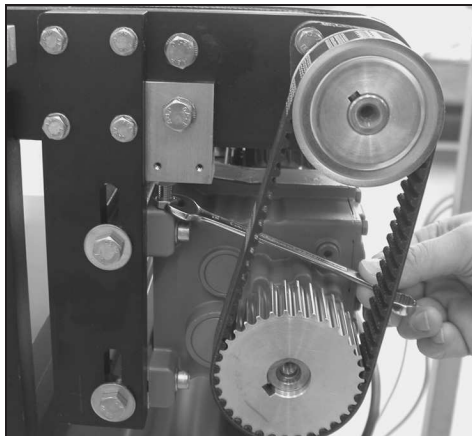


Fig. 26: Tensioning screw of the motor

1. Remove the toothed belt cover as described in chapter 4.7.1.
2. Loosen the two M10 hex head screws of the motor fixation **slightly**.
3. Screw out the two M4 hex head screws of the protective guard completely and remove the protective guard. Do not lose the washers of the two screws.
4. Turn out the M8 screw that presses the motor down using an open-end wrench until the recommended toothed belt tension has been reached. The toothed belt has to sag 2-3 mm in the middle but may not give by more than 5 mm when pressed with the thumb.
5. Tighten the two M10 hex head screws of the motor fixation.
6. Mount the protective guard using the two M4 hex head screws and the washers and screw tight.
7. Place the toothed belt cover over the drive and screw it tight.

4.7.3 Replacing the toothed belt

1. Remove the toothed belt cover as described in chapter 4.7.1.
2. Loosen the two M10 hex head screws of the motor fixation **slightly**.
3. Screw off the protective guard behind the toothed belt as described in chapter 4.7.2.

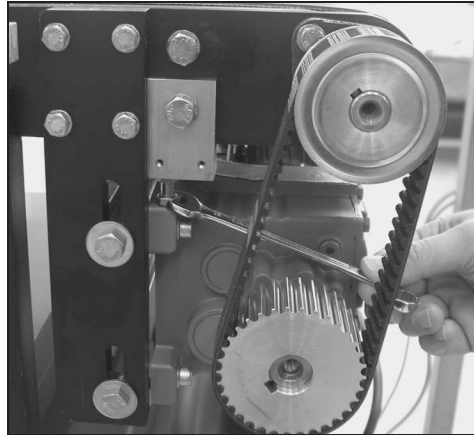


Fig. 27: Tensioning screw of the motor

4. Turn up the M8 screw that presses the motor down using an open-end wrench until the motor can be lifted a few millimeters and the belt tension is reduced notably.
5. Replace the toothed belt.
6. Turn out the M8 screw using an open-end wrench until the recommended belt tension has been reached (see chapter 4.7.2).
7. Tighten the two M10 hex head screws of the motor fixation.

8. Mount the protective guard using the two M4 hex head screws and the washers and screw it tight.
9. Place the toothed belt cover over the drive and screw it tight.

4.7.4 Replacing/adjusting the pulley at the motor

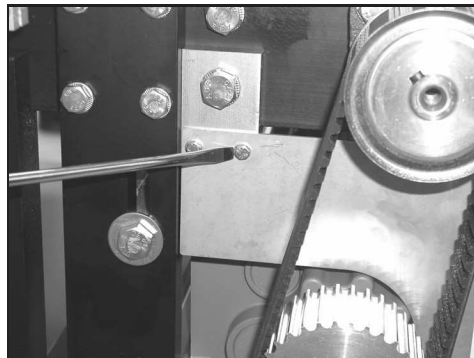


Fig. 28: Screws of the protective guard

1. Remove the toothed belt cover as described in chapter 4.7.1.
2. Loosen the two M10 hex head screws of the motor fixation **slightly**.
3. Screw out the two M4 hex head screws of the protective guard completely and remove the protective guard. Do not lose the washers of the two screws.

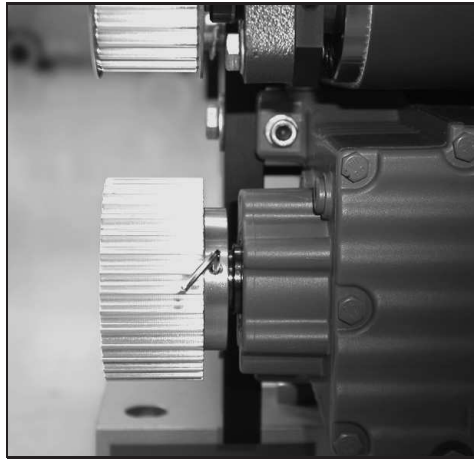


Fig. 29: Motor pulley with Allen key

4. Turn up the M8 screw that presses the motor down using an open-end wrench until the motor can be lifted a few millimeters and the belt tension is reduced notably.
5. Remove the toothed belt from the motor.
6. Loosen the M5 threaded pin using an Allen key in the motor pulley.

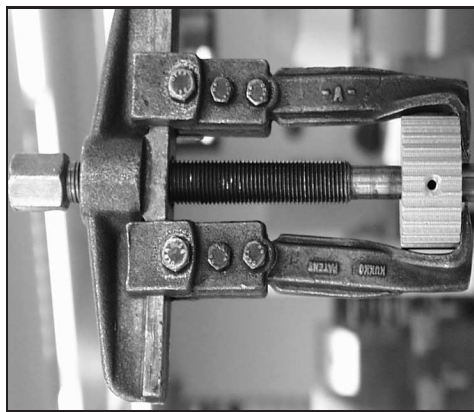


Fig. 30: Motor pulley with pulling-off device

7. Use a common pulling-off device to pull the pulley off the motor shaft.
8. Press a new pulley onto the motor shaft.
If necessary, use a plastic or rubber hammer to knock the pulley onto the shaft journal with cautious light blows. Knock against the pulley's center so that the pulley does not tilt.

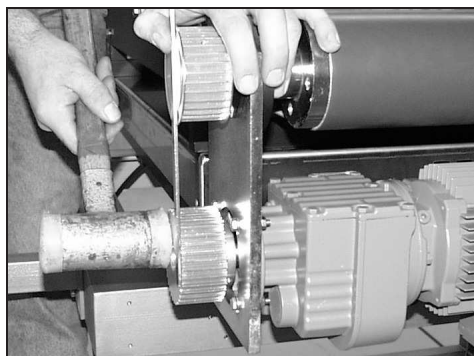


Fig. 31: Pulleys centered over each other

9. Use an alignment ruler to precisely align the motor pulley with the drive roller pulley.
10. Check whether the two pulleys lie exactly flush so that the toothed belt does not run askew. Otherwise excessive wear arises through lateral friction of the toothed belt or uneven running can occur through toothed belt knocks.

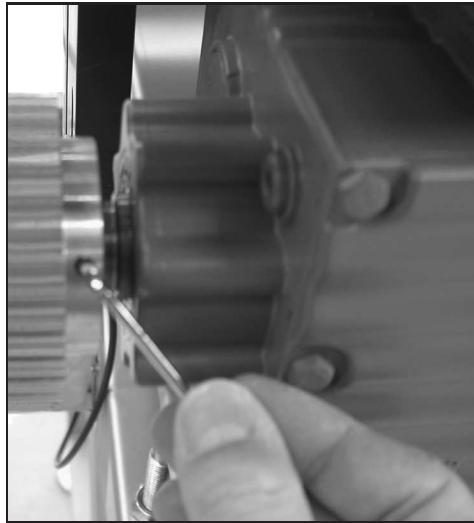


Fig. 32: Motor pulley with Allen key

11. If the two pulleys are not flush, loosen the M5 threaded pin of the drive roller pulley once more until the pulley can be loosened. Move the pulley of the drive roller so that the two pulleys are positioned centered over each other.
12. When the optimal alignment has been found, tighten the M5 threaded pin in the motor pulley and in the drive roller pulley well.

13. Check that the motor pulley still has enough free space at its rear so that it does not rub against anything. If it does, move the motor pulley away slightly and align the driver roller against the motor pulley.
14. Mount the toothed belt.

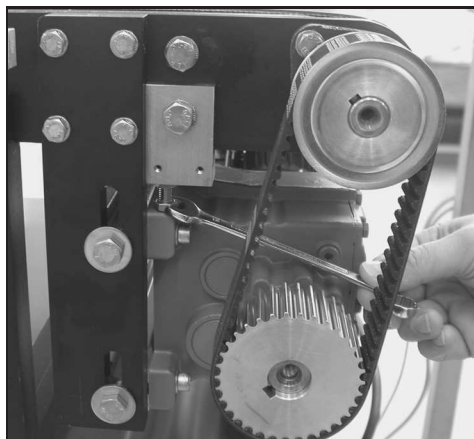


Fig. 33: Tensioning screw of the motor

15. Turn out the M8 screw that presses the motor down using an open-end wrench until the recommended toothed belt tension has been reached, see chapter 4.7.2.

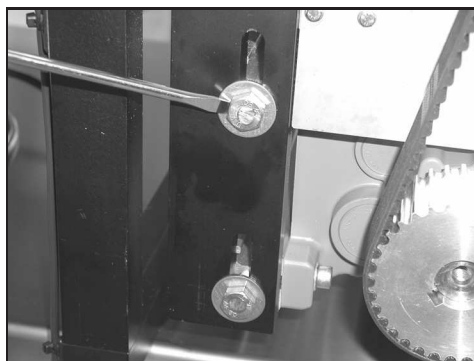


Fig. 34: Screws of the motor fixation

16. Tighten the two M10 hex head screws of the motor fixation.
17. Mount the protective guard and screw tight using the two M4 hex head screws and washers.



18. Place the toothed belt cover over the drive and screw it tight.

Fig. 35: Toothed belt cover

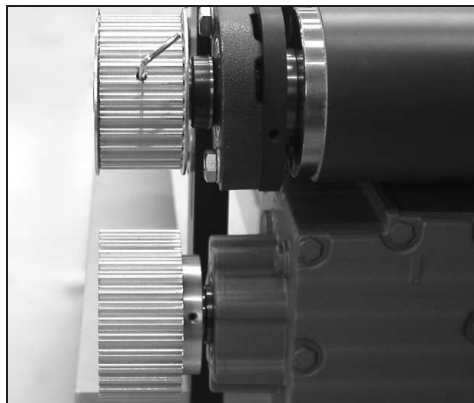
4.7.5 Replacing the drive roller's pulley

Note

Special know-how and skills are required to replace the drive roller.

→ Please contact our after-sales service.

1. Remove the toothed belt cover as described in chapter 4.7.1.
2. Loosen the two M10 hex head screws of the motor fixation **slightly**.
3. Screw off the protective guard behind the toothed belt as described in chapter 4.7.2.
4. Turn up the M8 screw that presses the motor down using an open-end wrench until the motor can be lifted a few millimeters and the belt tension is reduced notably.
5. Remove the toothed belt from the motor.



6. Loosen the M5 threaded pin in the drive roller pulley.

Fig. 36: Drive roller pulley

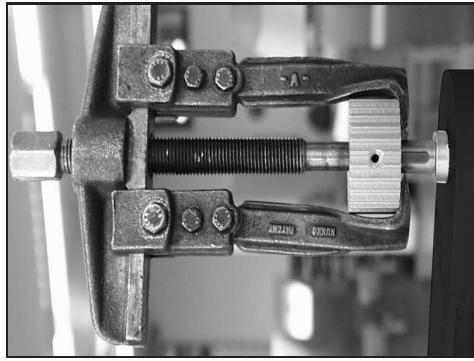


Fig. 37: Pulley of the drive roller with pulling-off device

7. Use a common pulling-off device to pull the pulley off the shaft journal of the drive roller.
8. Press the new pulley onto the shaft of the drive roller.
If necessary, use a plastic or rubber hammer to knock the pulley onto the shaft journal with cautious light blows. Knock against the pulley's center so that the pulley does not tilt.

9. Use an alignment ruler to precisely align the pulley at the drive shaft to the motor pulley.
10. Check whether the two pulleys lie exactly flush so that the toothed belt does not run askew.
11. Mount the toothed belt.
12. Turn out the M8 screw that presses the motor down using an open-end wrench until the recommended toothed belt tension has been reached, see chapter 4.7.2. Mount the protective guard and screw tight using the two M4 hex head screws and washers.
13. Place the toothed belt cover over the drive and screw it tight.

4.8 Spare parts and warranty



Note

Keeping spare parts in stock – i.e. in particular those parts which are normally subject to wear – can help to reduce downtime in the case of a failure. Contact us for advice.

Information about cleaning and maintaining optional devices at the weighframe is available in **X-Series System Manual Part 6: Options**, in as far as such options and accessories require supplementary or specific information about cleaning and maintenance.

5 Operating modes

5.1 Starting the production (dynamic weighing)



1. Switch on the weighframe with the main power switch.

Note

If the weighframe is switched on and off from a remote point, switch it on using the respective control system.

2. After the weighing terminal's short start-up phase has taken place, check that the right package (i.e. package memory location) is active.
3. If necessary, change the article (see **X-Series System Manual Part 4: Weighing terminal**, chapter 5.1).



4. Touch the "START" button on the basic screen of the weighing terminal in order to switch on the belt conveyors. Prerequisite is a corresponding version of weighframe and weighing terminal.

– or –

In case of designs for external controlling, switch on the belt conveyors via the external control system.

– or –

Press the conveyor START push-button (located on the weighframe) to turn on the belt conveyors.

5.2 Ending the production



1. Touch the "STOP" button on the basic screen of the weighing terminal in order to switch off the belt conveyors. Prerequisite is a corresponding version of weighframe and weighing terminal.
– or –
In case of designs for external controlling, stop the belt conveyors via the external control system.
– or –
Press the conveyor STOP push-button (located on the weighframe) to switch off the belt conveyors.
2. To be on the safe side, it is recommended that any existing auxiliary/accessory equipment (such as ticket printers) be checked for existing data (production results) or print jobs which are important for the documentation of the production.



3. Switch off the weighframe by using its main power switch.

Note

If the weighframe is switched on and off from a remote point, switch off by using the respective control system.

5.3 Behavior of the checkweigher after a failure of the energy supply

Power supply

After a power failure the belt conveyors of the weighframe remain stopped. The weighframe does not restart automatically when the power supply returns.

The operating procedure corresponds to the operating procedure after the main power switch has been switched on, see chapter 5.1 "Starting the production (dynamic weighing)".

6 Faults/emergency run

If you wish to contact the after-sales service/ServiceLine due to persistent problems, please have as much information at hand as possible:

- Type (model)
- Serial number
- Year of manufacture
- METTLER TOLEDO Garvens order number and date, if known
- Displayed software version of the weighing terminal
- Precise wording of the displayed error message or detailed fault description, respectively

This helps us to avoid delays in helping you.

6.1 System messages

In the info field of the basic screen at the weighing terminal error and fault messages are displayed in plain text. These provide information about certain processes or malfunctions.

A list of error messages with the description of cause and remedy can be found in the **X-Series System Manual Part 4: Weighing terminal**, chapter 10.

6.2 Emergency run

In case of any fault occurring at your METTLER TOLEDO Garvens checkweigher, an emergency run function can be activated so that the products continue to be transported on a belt conveyor while the weighing function does not function. All weighframes feature this emergency run circuit.

Note

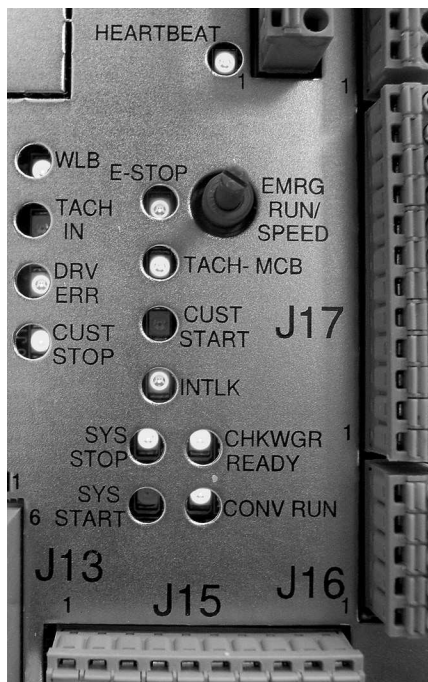
The weighing function of the checkweigher and all other functions normally available are deactivated in the case of emergency run; only the conveyors are running in order to transport the items.



The **Emergency run switch** for controlling the speed during the emergency run is located in the control cabinet on the XRTC module.

1. Open the door of the control cabinet.

The XRTC module can be located easily by means of the following figure:



The button beside the caption EMRG RUN/SPEED which is located top right is a speed controller with integrated switch for the emergency run.

2. In the case of a malfunction slightly turn the blue button.

You feel a slight resistance. After overcoming this resistance the controller can be turned continuously.

3. Press the conveyor start button (button "I") on the weighframe.
4. Set the desired speed for the emergency run.

Note

The electronic equipment belonging to the emergency run function can also be designed as a separate unit, if necessary, outside the control cabinet.

7 Technical data

7.1 Weighframe

Material of the standard design	Framework and control cabinet made of steel, painted. Different (customized) designs possible.
Protection class of the weighframe in the standard design	Ingress protection against to dust and splash water in accordance with IP 54
Electromagnetic environmental classification	E2
Compressed air connection	1/4", 6 bar (only for version with optional sorting/rejecting, e.g. pusher)
Permissible operating temperature	0 to +40 °C
Noise emission	Less than 70 dB(A)
Power connection of the weighframe	230/115 VAC $\pm 10\%$, 50/60 Hz, single phase
Weighframe power consumption	approx. 750 VA

7.2 External components and connections

Interfaces	At least: 2 x serial (COM1 and COM2, depending on design RS-232-C, RS-422-A, RS-485, CL20), PS2, Ethernet, 2 x USB (expandable via hub)
Printer and external storage media	Connection via interfaces; technical design depends on configuration

7.3 Weighing functions

Main function	Dynamic weighing with displaying of weights and weight classification, with various options such as: • Data transmission via interface • Reports (statistics) • Saving or printing data • Programs for controlling fill processes • Sorting devices • Various special modes of operation (depending on customized version)
Secondary function	Static weighing (displaying of weights)
Re-zero (setting to null)	Automatic or manual, depending on configuration

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X-Series System Manual Part 4:

Weighing terminal with 7" touch screen

METTLER TOLEDO

A graphic element consisting of a series of parallel green lines forming a diamond shape, positioned behind the Mettler Toledo text.

Version check:

Version No.	Date
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Version 3.0	April 2011
Version 2.0	October 2007
Version 1.0	April 2006

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1 Introduction

1.1 Using the touch screen

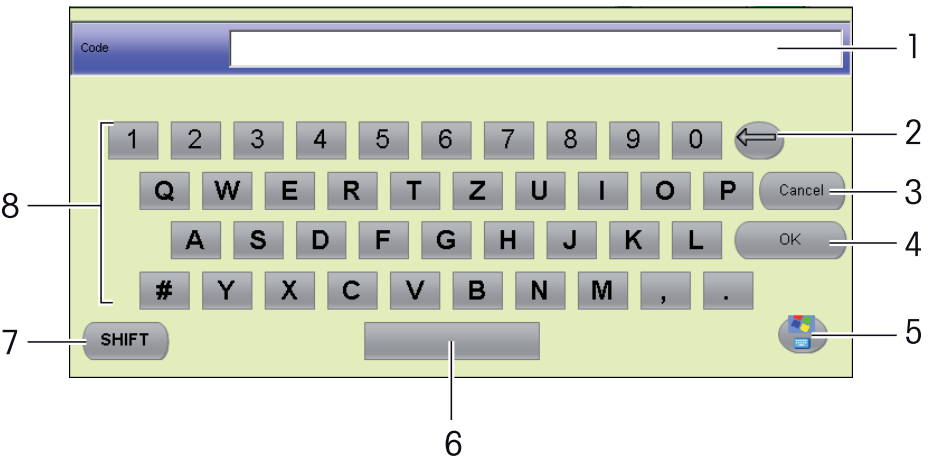
The touch screen technology provides rapid and simple operation by directly touching the menu items and command buttons with your finger. Navigating with the cursor is then no longer required.

- ▲ The touch screen may only be touched with your finger or a blunt object. The use of sharp objects, such as a screw driver, can destroy the touch screen. This case is not covered by the warranty.

Note

The package and other data can also be entered with a common PC keyboard with a USB connection. The USB port is located on the computer of the weighing system.

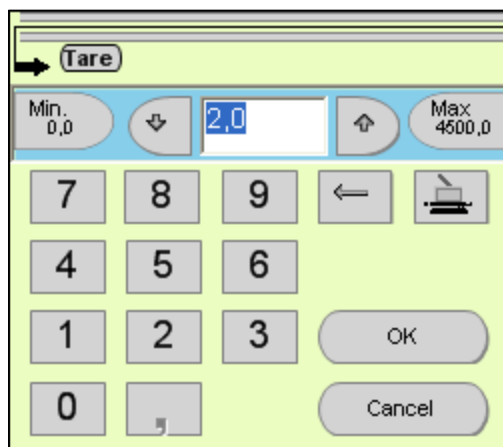
Character and digit entries If alphanumeric entries (characters and digits) are required for a parameter, the window with the virtual keyboard opens:



The functions of the keys correspond to those of common keyboards:

Item	Description
1	Entry field Characters and digits can be entered by touching the screen keyboard or by using an external keyboard.
2	Correction key Used to correct typing errors. The character last entered is deleted.
3	Cancel button Cancels the entry without storing the entries.
4	OK button The entries and selections made are accepted and the window is exited.
5	Button for displaying an extended screen keyboard
6	Space key
7	SHIFT key For switching between upper- and lower-case when entering characters.
8	Screen keyboard Touch the required characters/digits. If appropriate touch the SHIFT key first.

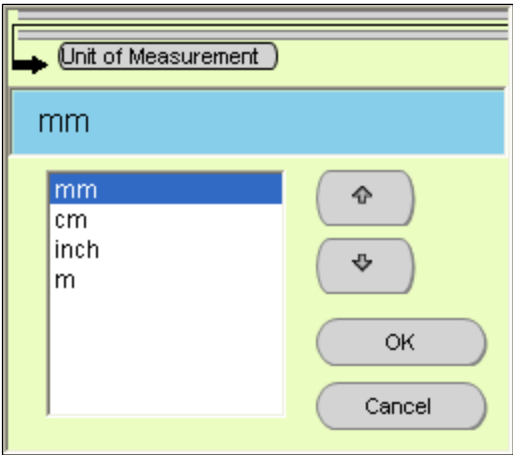
Numerical entries If solely numerical entries are required for a parameter, such as to enter a value, a window with the numerical keypad opens:

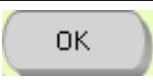
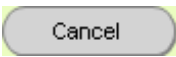


Button	Description
	Displays the minimum value that has to be entered. Touching the field accepts the displayed minimum value.
	Displays the maximum value that may be entered. Touching the field accepts the displayed maximum value.
	Arrow key left: The displayed value is decreased. Arrow key right: The displayed value is increased. Note An implausible value has a red background.
	Accepts the current weight measured on the weighcell into the digit field. The conveyor must be at a standstill for this.
	Correction key Used to correct typing errors. The character last entered is deleted.

The other keys (**OK**, **Cancel**) correspond in their meaning to those of the character field on the previous page.

Selection from list boxes If a parameter has several selection options, a window opens containing the possible selections, for example to select the unit:



Button	Description
 	Scroll up- and downward through the list of selection options
	Displays the current selection
	The selection made is accepted and the window is exited.
	Cancels the entry without storing the entries.

Return to basic screen (Home) Touching the  button in the screen footer returns you from any point in the program back to the **basic screen**.

2 Description

2.1 How the checkweigher works

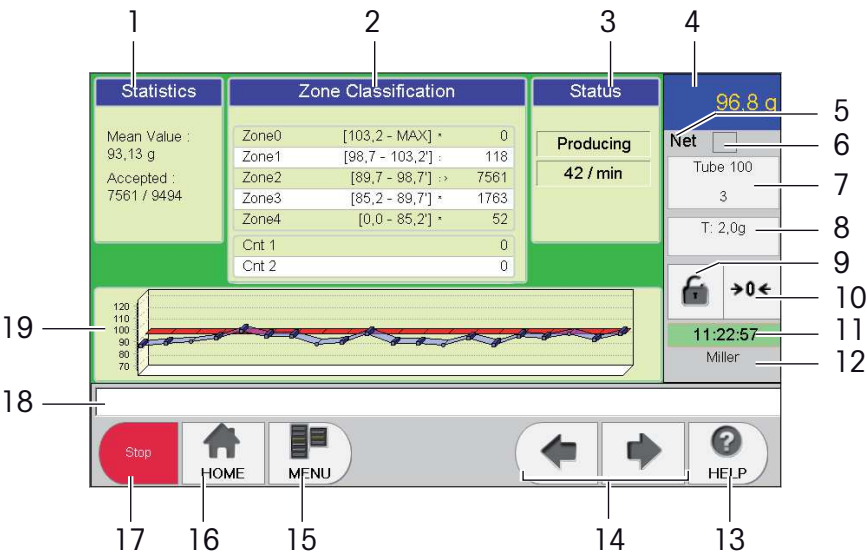
Companies that process and package products use checkweighers to make sure they do not sell too much or too little of the product in question to the end-user.

Checkweighers are also used for statistical analysis in the companies, strict quality control and cost reduction purposes.

The product is weighed while it is on the production line. Weight zones are defined for all products in advance and items that are not within their weight zone are rejected during production.

Checkweighers can carry out weighings while the conveyor moves either continuously or intermittently. The conveyor is not stopped when the product is being weighed in continuous mode. In intermittent mode, the product is stopped briefly on the checkweigher and weighed.

2.2 Basic screen overview



Note

The basic screen of your concrete checkweigher may deviate slightly from the **basic screen** due its customized configuration.

Item	Explanation
1*	Statistics (option) – Current mean value as well as the number of accepted products and total number of all weighed products. When touched it changes to the Total Statistics screen.
2	Zones – Display of the zone designation, the current tolerance limits, the product quantity per weight class and of the special counts such as the Countercheck* and the number of products recognized by the Metal Detector* as containing metal. A tolerance limit can always only belong to one zone. If a tolerance limit value does not belong to the zone that it delimits, it is identified in the weight zones display by an inverted comma (also see Chapter 4.3 "Limit Setup"). The zone in which the product just weighed belongs is identified by >. When touched it changes to the Zones screen.
3	Current system status. When touched it changes to the OMAC System Status screen.
4	Net weight of the product being weighed. When touched it changes to the Large Weight Display screen. The gross weight, the difference between the actual weight and the target weight or the mean value gliding count can optionally be displayed in the Large Weight Display screen.
5	In static operation the gross weight is always displayed, without deduction of the tare. The tare is only deducted at a running conveyor and only then is the "Net" symbol displayed.
6*	Direct jump to the control chart for the Feedback (option). The display field changes its color depending on the control process: • Up control: Red • Down control: Green • No control: Gray Note The field is only available when the Feedback option is activated.
7	Name and Code Number of the package currently being weighed. When touched it changes to the Package Changeover screen.
8	Display of the current tare

9	Status display of the current password protection. If there is a green bar under the display of the date and time (toggle field): - When the lock symbol above the date and time display is closed: The device is in monitoring mode. No user is logged in. - When the lock symbol is open: A user is logged in and the bar under the date and time is reduced in accordance with the preset utilization time for this user. If there is a red bar under the date and time display, the lock symbol is locked and the device is in monitoring mode: - Either the utilization time of the logged-in user has expired – or – – or – - The lock symbol was touched while a user was logged in. The user is now logged off. When the closed lock symbol is touched, the Login screen is displayed. After a successful login the bar becomes green again.
10	For manual rezero of the large weight display when the weighing conveyor or platform is empty. If no rezero is carried out within a specified period, the rezero button becomes red. Note In the case of certified checkweighers the button is deactivated as soon as the motors run.
11	Display of date and time. The display has a green bar in the background that shows the logged-in user how much time still remains for entries at the touch screen. If nothing is entered on the touch screen for a specified length of time, the weighing terminal automatically switches back into security mode. The bar becomes red.
12	Display of the current user. This display changes between the name and the profile of the respective user.
13	Call up online help.
14	Change to the previous or next view (not always displayed).
15	Call up the main menu.
16	Change to the basic screen .
17	Start/stop conveyor drives in as far as operation via the touch screen is provided.
18	Info field for system information, alarms and errors. When touched it changes to the Messages screen.
19	Graphical display of the last 20 measured items and the mean value gliding count. The chart is zoomed in with every touch.

Note

Fields of the basic screen that are marked with an asterisk (*) require the corresponding options to be activated. If for example the optional **Feedback** is not available, the field for jumping directly to the control chart (6*) does not exist. And if the **Statistics** option is not activated, the information "Statistics Disabled" is displayed in Field 1 instead of the statistical data.

2.3 Menus

Note

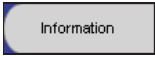
The **menu** layout depends on the user's access level (profile). Users with a low access level do not see all the menu items described here.

Subordinate menus can be displayed on a higher level to users with a low access level so they can access those menus more easily.

Depending on the access authorization the users see only a part of or all the main menus:

- Information
- Production Data
- Package Maintenance
- Actions
- Setup
- Maintenance

The form of the buttons in the menu corresponds to the following functionality:

Button	Function
	Rounded button: Calling up a screen
	Button flattened on the right-hand side: Opening a submenu

The following representations take the access authorizations up to and including the **Supervisor** access level into account.

Note

Numerous options are available for the checkweigher. These are described in detail in the **X-Series System Manual Part 6: Options**.

All the options are only displayed in the menus if the respective option is installed and is activated in the **Function Allocations** menu (see Chapter 9.4 "Function Allocations").

2.3.1 Information menu (Level 1)

Level 2	Level 3
Messages	
Status	OMAC Machine Status
	Components Status
	Info: Outputs
	Info: Inputs
	Positions
XRTC**	
System Information	
Stored Printouts*	

* Option

** Select menu items when instructed by after-sales service to do so

The following information can be called up in this menu:

- System Information
- Information about the checkweigher and its components as well as their positions
- Logs of the statistics, evaluations and messages

For detailed information about this menu see Chapter 7 "Information".

2.3.2 Production Data menu (Level 1)

Level 2	Level 3
Zones	
Statistics*	Total Statistics*
	Hour Statistics*
	Interval Statistics*
	Batch Statistics*
	Records Table*
	Records Graphics*
Charts	Feedback*
	Items
Large Weight Display	

* Option

The following values can be defined and called up in this menu:

- Display weight zones with all the parameters
- Statistics (option): Call up Total Statistics, Hour Statistics, Interval Statistics, Batch Statistics, Records Table and Records Graphics.
- Display items and chart for Feedback (option)
- Large Weight Display

For detailed information about this menu see Chapter 6 "Production data".

2.3.3 Packages menu (Level 1)

Level 2	Level 3
Active Package	Main Package Setup
	Add. Package Setup
	Limit Setup
	Statistical Limits*
	Interval Setup*
	Feedback Setup*
	Metal Detector*
	Rejecter Adjustment
	Dynamic Calibration
Package Maintenance	Package Changeover
	Create New Package
	Edit Package
	Delete Package
	Copy Package
	Print Package*
Packages Export and Import	
Zone Calculation Setup	

* Option

In this menu, you can enter and edit the following values and settings for a package:

- Call up and change the settings for the current package as well as configure package options
- Change, create, edit, delete, copy and print packages in the package maintenance
- Export and import packages
- Zone pre-assignment for automatic recalculation of the zones after the target weight has been changed

For detailed information about this menu see Chapter 4 "Active Package" and Chapter 5 "Package Maintenance".

2.3.4 Actions menu (Level 1)

Level 2
Login
Final evaluation*
Batch*
Tare

* Option

The following functions can be executed up in this menu:

- A user logs in with user name and password
- Direct request of a final evaluation (option)
- Direct entry of the Batch Number (option) or of the tare weight

For detailed information about this menu see Chapter 3 "Actions".

2.3.5 Setup menu (Level 1)

Level 2	Level 3
Users	Edit Users
	Edit Profiles
	Assign Profiles
	Quick Access Setup
	Users Export and Import
General	Time and Date
	Rejecter Settings
	Zone Actions
	Miscellaneous Setup
System	Speed
	Function Allocations

The following values and settings can be entered in this menu:

- Administrate the profiles of the users, export and import users
- Assigning of views for Quick Access to the current user profile
- Set general parameters (time, rejecter, zone actions)
- Miscellaneous: Carry out basic settings that are only carried out once
- Set motor parameters
- Edit functions and options (as instructed by the METTLER TOLEDO Garvens after-sales service)

For detailed information about this menu see Chapter 9 "Setup".

2.3.6 Maintenance menu (Level 1)

Level 2	Level 3
Data Backup	Backup Internally
	Backup USB Stick
	Restore Internally
	Restore USB Stick
File Copy	

* Option

This menu is used mainly by technicians who have carried out changes to the system.

The following files of the system can be administered in this menu:

- Store configuration and/or software
- Restore backup

For detailed information about this menu see Chapter 8 "Exporting and importing data".

2.3.7 Quick Access menu

The menu item **Quick Access** is only displayed if views have been assigned to a profile using the menu item **Setup – Users – Quick Access Setup**. The selected view are displayed on menu level 2.

For detailed information about this menu see Chapter 9.1.4 "Configuring the Quick Access Setup".

2.4 Access levels

The weighing terminal is normally in "Monitoring" mode. The weighframe is in operation but the settings cannot be changed. To de-activate this protection, a user ID and a password have to be entered.

Access rights are defined in user profiles and each user profile is assigned to each user. Access rights vary from being able to only view statistics and values without any write permissions up to extensive administrator rights.

The following access levels, which can be modified as required, exist:

Profile name	Authorization
Viewer	Solely viewing of parameters and selected statistics. No password, but can also be protected with a password
Operator	Additional rights for switching to a different package memory location and for printing statistics
Supervisor	In addition for example rights for setting up or deleting a new article, adjusting rejecters and assigning zone actions
Administrator	All rights, usually corresponding to the access level of the manufacturer's Technical Customer Support

The factory-set profiles can be modified as required or further profiles added.

This manual describes the functions for all the access levels up to and including the **Supervisor** level.

3 Actions

In order to operate the weighing terminal the user has to enter his password and name. In addition the user can individually change the user interface language and the password in this menu.

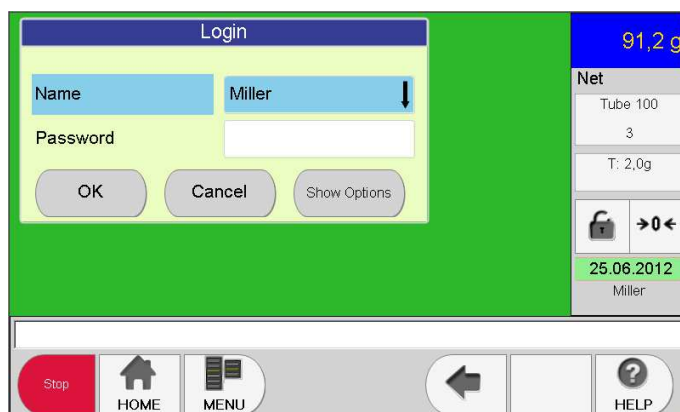
3.1 User log-in

1. In the **basic screen** touch .

– or –

- In the **basic screen** touch  and select the menu items **Actions – Login**.

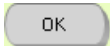
The following screen is displayed:



2. Touch the input field next to **Name**.

The following window is displayed:



3. Select the user name and touch .

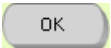
The **Name** window is closed.

4. Touch the input field next to **Password**.

The screen keyboard is displayed.

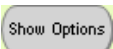
5. Enter the password and touch .

The system returns to the **Login** screen. The user name and **** for the password are displayed.

6. Touch .

The user is logged in.

Note

The  button does not function until the name and password have been entered correctly.

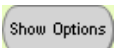
3.1.1 Editing the password

1. In the **basic screen** touch .

– or –

In the **basic screen** touch  and select the menu items **Actions – Login**.

2. If you are not yet logged in, select the name and enter the password (see Chapter 3.1 "User log-in").

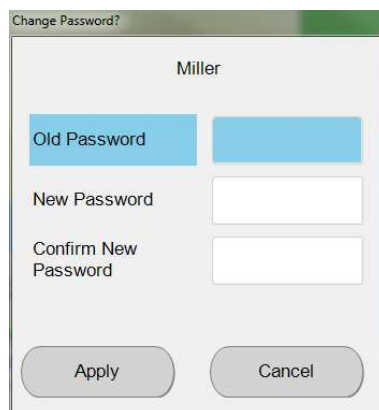
3. Touch .

The following screen is displayed:

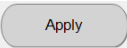


4. Activate **Change Password?** and touch .

The following window is displayed:

A dialog box titled "Change Password?" with a green header bar. Below the title bar, the name "Miller" is displayed. The dialog contains three input fields: "Old Password" (highlighted in blue), "New Password", and "Confirm New Password". At the bottom, there are two buttons: "Apply" and "Cancel".

5. Consecutively enter the old password, enter the new password and once more the new password for confirmation.

6. Touch .

The new password is stored.

3.1.2 Changing the user interface language

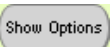
Note

If no-one is logged in at the checkweigher, the "Timeout" language is active. This basic setting can be changed in the **Supervisor** access level (see Chapter 9.2.4 "Miscellaneous Setup").

1. In the **basic screen** touch .

— or —

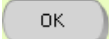
In the **basic screen** touch  and select the menu items **Actions – Login**.

2. If you are not yet logged in, select the name and enter the password (see Chapter 3.1 "User log-in").
3. Touch .

The following screen is displayed:

4. Touch the field next to **Language**.

The list with the available languages is displayed.

5. Select the desired language and confirm with .

The user interface is displayed immediately in the desired language.

3.2 Changing the tare

This action allows the tare weight to be changed directly.

1. In the **basic screen** touch .
2. Select the menu items **Actions – Tare**.

The numerical screen keypad is displayed and the new tare weight can be entered.

Alternatively the current weight measured on the load cell can be accepted into the digit field by using the  button. The conveyor must be at a standstill for this.

The tare weight is displayed in the **basic screen** at the top right and in the **Package Setup** of the current package.

Note

Further entries can be configured in the **Actions** menu than those described below, for example if the **Statistics** option is active, the entries **Batch** and **Final evaluation**.

4 Active Package

This menu can be used to change the settings of the active package. The desired screen can be selected directly via the corresponding menu item.

Note

The settings in this menu may only be carried out by users having the corresponding authorization.

The active package data are categorized in the following screens:

- 4.1 "Main Package Setup" on Page 4–24
- 4.2 "Add. Package Setup" on Page 4–26
- 4.3 "Limit Setup" on Page 4–28

Note

In addition to these three standard functions, numerous hardware and software options are available whose settings can partially be carried out by using the menu **Active Package**.

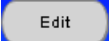
Information about the options settings can be found in the **X-Series System Manual Part 6: Options**.

Changing settings and parameters

Settings and parameters are modified in all the screens as follows:

1. In the **basic screen** touch .
2. Select the menu items **Packages – Active Package** and call up the screen that contains the parameters to be changed.
3. Touch the field of the desired parameter.

– or –

Use  and  to select the desired field and touch .

The screen keyboard, the numerical keypad or a window with a list box opens.

4. Enter the new value and confirm with **OK**.

The system returns to the initial screen.

5. Touch  to save the entries.

– or –

Touch  to reject the entries.

– or –

From the list window select the next window for editing the package data.

4.1 Main Package Setup

1. In the **basic screen** touch .
2. Select the menu items **Packages – Active Package – Main Package Setup**.

Main Package Setup

Name

Tube 100

3

Target

100,0

Tare

2,0

Unit of Measurement

mm

Target Throughput

100

Stats?



Apply



Edit



Cancel

95,2 g

Net

Tube 100

3

T: 2,0g

12:11:16

Miller

Stop

 HOME

 MENU



 HELP

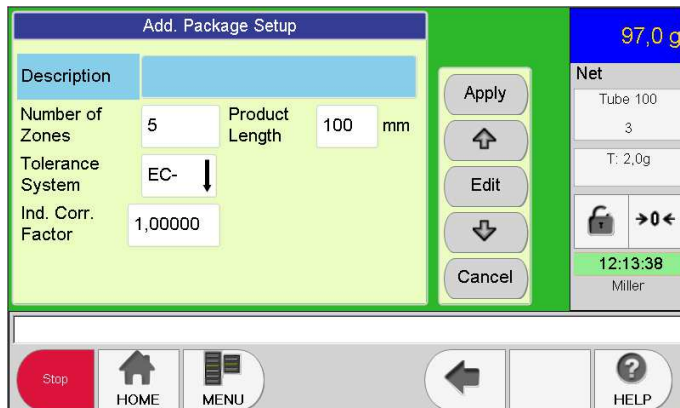
The input fields have the following meaning:

Field	Description
Name	Name of the package. Use a unique name. The "Code" field has to be used for designations that are repeated.
Target	Target weight of the package, the basis for automatically determining the limits "TU1" and "TU2" and the base value for production data and statistics. The target weight can be entered via the numerical screen keypad. Alternatively the current weight measured on the weighcell can be accepted into the digit field by using the  button. The belt must be at a standstill for this.
Tare	Mean fixed tare of the package that is deducted from the measured weight during each dynamic weighing process. Note Tare values with decimal places When entering the numerical value for the tare the rounding that is set in the configuration has to be observed. During running operation the decimal places in the large weight display allows a conclusion to be drawn about the type of configured rounding: • All the numbers can be entered after the decimal point: Any number can be entered after the decimal point for the tare. • Only even numbers are entered after the decimal point: Only even numbers (0, 2, 4, 6, 8) may be entered after the decimal point for the tare. • Only 0 and 5 are entered after the decimal point: Only 0 and 5 may be entered after the decimal point for the tare.

Target Throughput	The target throughput is the number of products to be weighed per minute. The checkweigher automatically calculates the necessary belt speed to reach the target throughput and sets this speed when this screen is closed – with the exception of weighers with fixed speed and in clocking mode.
[Code]	If desired, enter an additional identification of the package behind the name such as a number or characters (for example EAN Code). This information is displayed during the production directly under the package name (right) and on printouts.
Unit of Measurement	Unit for length, width and height of the package (mm, cm, inch, m).

4.2 Add. Package Setup

1. In the **basic screen** touch .
2. Select the menu items **Packages – Active Package – Add. Package Setup**.



The input fields have the following meaning:

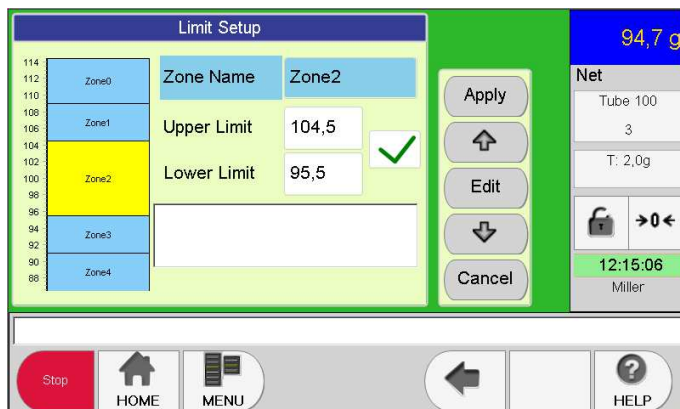
Field	Description
Description	Description of package (optional)
Number of Zones	Specify the number of weight zones (weight classes) (3 weight zones by default, maximum of 5 weight zones as option).
Tolerance System (Statistics option)	Selection of the tolerance system "EC-", "FREE", "US" or "Australian"
EC-	This system complies with EU production directives. If the "TU1 Percentage" and "TU2" limits are violated, the product in question is rejected. Note If "EC-" is set as the tolerance system, rejecters need to be assigned to the zones "TU1" and "TU2".
FREE	If "FREE" is selected, violations of the "TU1 Percentage" and "TU2" limits do not necessarily cause the product in question to be rejected. It is possible in this case to select the rejecter number "NO" (= no rejecter).
US	If "US" is selected, the product weights are only checked to see whether they lie within the tolerance range that can be entered in the statistics entry screen – and the mean value displayed in the production data screens is only calculated from weights lying within this range. If "US" is selected, weight sorting does not take place, meaning that products are not rejected by the statistics program. See X-Series System Manual Part 6: Options .
Australian	Observes the Australian legislation.

Field	Description
Correction Factor	Entry of the correction factor. Function of the correction factor: When the belt speed is very high, the weight value can differ from the value determined during statistical weighings. This effect is compensated by automatically multiplying the correction factor with the dynamically determined weight value. The correction factor is only taken into consideration if the weigher has been pre-configured correspondingly in the factory. The correction factor can be determined by means of a wizard function, see Chapter 4.5 "Dynamic Calibration". Note In weighing environments where calibration is compulsory, the "individual correction factor" is not displayed on screen and cannot be changed by the operator.
Product Length	Enter the maximum edge length of a product measured in mm – viewed in the transport direction of the conveyors.

4.3 Limit Setup

1. In the **basic screen** touch .
2. Select the menu items **Packages – Active Package – Limit Setup**.

The zones can have a different appearance than in the following example image depending on your customized configuration.



The limits of the individual weight zones used to classify products by weight are entered in the **Limits Setup** window. The graphic on the left-hand side shows the distribution of the individual zones. The number of zones was specified in the **Add. Package Setup** window. Every weighed product is categorized into one of the weight zones defined here in accordance with its weight.

The limits have to be set in descending order. They can be set according to your individual requirements. For example you can set solely underweight classes so that all the entered limits lie under the target weight of the package.

The input fields have the following meaning and can be set individually for each selected weight zone:

Field	Description
Zone Name	The designations assigned in the factory, Zone 1, Zone 2, etc. for the weight zones (weight classes) can be changed here. They are then used, for example, in the basic screen and in printouts to mark the different weight zones (weight classes).
Upper Limit	Specify the upper tolerance limit of the respective weight zone.
Lower Limit	Specify the lower tolerance limit of the respective weight zone.
 "Accepted"	You can specify individually for each zone whether it classified as "Accepted" or not in the sense of the Statistics option.
 "Not accepted"	
[Text field]	Display of the actions assigned to a zone, see Chapter 9.2.3 "Allocating actions to the weight zones".

4.4 Rejecter Adjustment

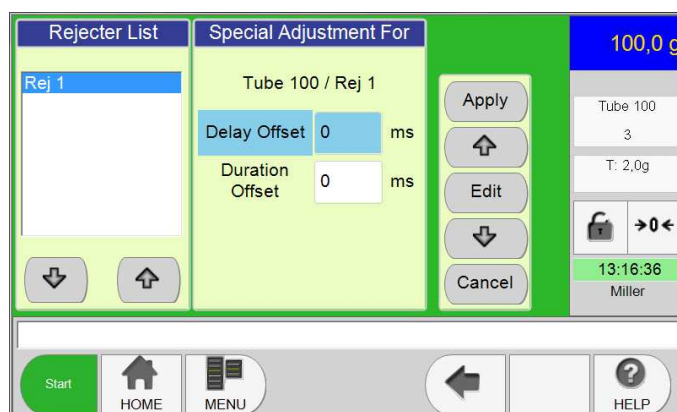
In the **Rejecter Adjustment** menu you can enter a specific delay and change the pulse duration for the current package. This changed setting applies solely for the current package.

Note

By contrast the settings in the **Rejecter Settings** screen apply for all the packages (see Chapter 9.2.2 "Rejecter Settings").

1. In the **basic screen** touch .
2. Select the menu items **Packages – Active Package – Rejecter Adjustment**.

The following screen is displayed:



3. In the **Rejecter List** use  and  to select the desired rejecter.

The input fields have the following meaning:

Name	Description
Delay Offset	For dynamic checkweighers: Allowance that compensates the lag of the rejecter, in "ms". For intermittent checkweighers: For fine adjustment between two cycles. The reference is the global sorting distance. Examples: • Blast nozzles approx. 50 ms • Pushers approx. 100 ms • Swing gates/Sorting hatches approx. 120 ms
Duration Offset	Change in the pulse duration that is set in the general sorting data (entry in ms). Example: Compensation of different package widths, when for example a longer pusher stroke is necessary.

4.5 Dynamic Calibration

In the menu **Dynamic Calibration** a package-specific correction factor (see Chapter 4.1 "Main Package Setup") can be determined from the mean value of dynamic measurements and the static comparison value. The calculation is carried out with a test product (product sample).

1. In the **basic screen** touch .
2. Select the menu items **Packages – Active Package – Dynamic Calibration**.

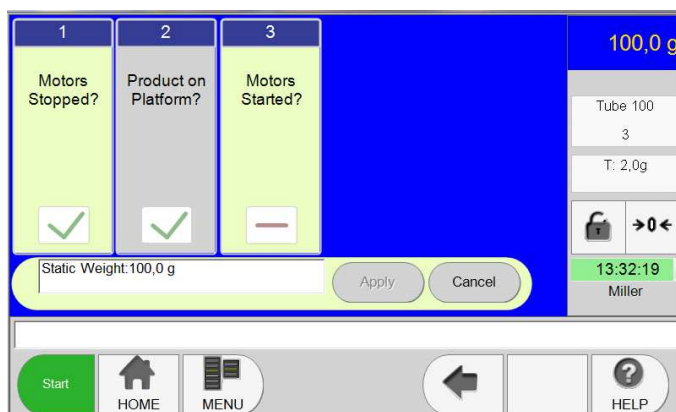
The following screen is displayed:



Dynamic calibration is carried out in four steps:

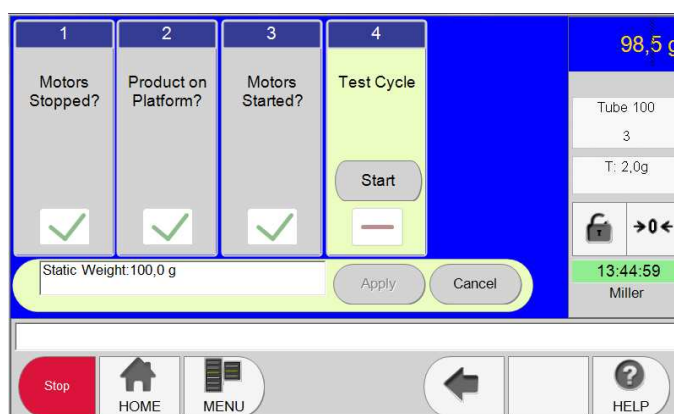
1. Stop the motor.
Prerequisite is that the motor is standing still. The status of the motor is recognized automatically. As a rule no action is required by the user here.
2. Place the test product on the weighing platform and after a few seconds touch .

When carried out successfully, Step 2 becomes gray, Step 3 is displayed in the screen and the static weight of the product is displayed in the lower text field:



3. Take the product from the platform and restart the motor.

The state of the motor is recognized automatically and the screen with Step 4 is displayed:



4. Touch **Start** to start the test cycle with 10 products.

After the test cycle has been completed, the calculated correction factor is displayed in the lower field:



5. In order to accept the calculated correction factor touch **Apply**.

– or –

In order to reject the calculated correction factor touch **Cancel**.

5 Package Maintenance

In this menu packages can be changed, created, edited, deleted, copied or printed in the packages database. Users of the **User** access level can change or print packages. A higher access level is required for the other functions (creating, deleting, editing packages, etc.).

5.1 Package Changeover

Changing to another package that has already been created in the checkweigher memory is simple. Depending on the package, some mechanical settings on the weighing system may be necessary to adapt it to the new package. For example it may be necessary to adapt optional equipment such as lateral guide railings, specific light barrier systems, special conveyors.

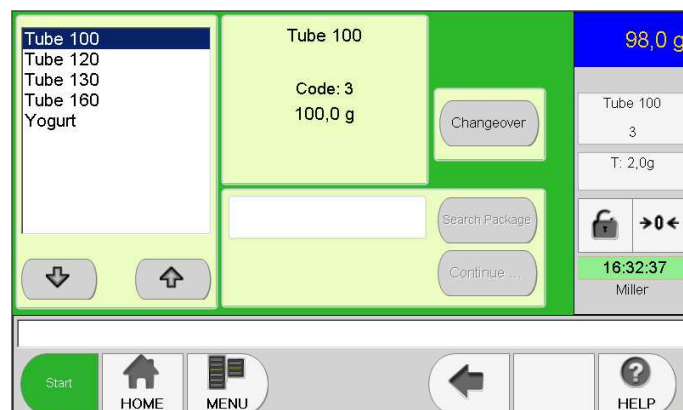
All that needs to be done to change the active, i.e. current, package is to open the memory location for the new package.

1. In the **basic screen** touch the package name on the right-hand side.

– or –

In the **basic screen** touch  and select the menu items **Packages – Package Maintenance – Package Changeover**.

The following screen is displayed:



2. Touch the desired package or use  or  to select it.
3. Touch .

The system returns to the **basic screen**. The name and Code No. of the new package are listed in the basic screen on the right-hand side. The newly selected package is activated immediately for future weighings.

If the target weight or the tare is changed, observe the following:

Changing target weight

When an attempt is made to change the stored target weight of a package that has already been weighed and whose recorded production data (statistical results, counter values, mean values, etc.) have not yet been called up and deleted by the user, the checkweigher automatically requires triggering of a final evaluation of this package.

After the final evaluation – with printing out of all the production data of this package, in as far as a printer is connected – the recorded production data of this package are deleted. Subsequently the changed target weight is accepted.

Changing the tare

The tare weight is deducted automatically from the determined weight at every dynamic weighing so that the weight display in the information section of the screen displays only the net weight of the product.

Note

The tare weight is not deducted when the conveyors are switched off (static operation).

5.2 Print package (option)

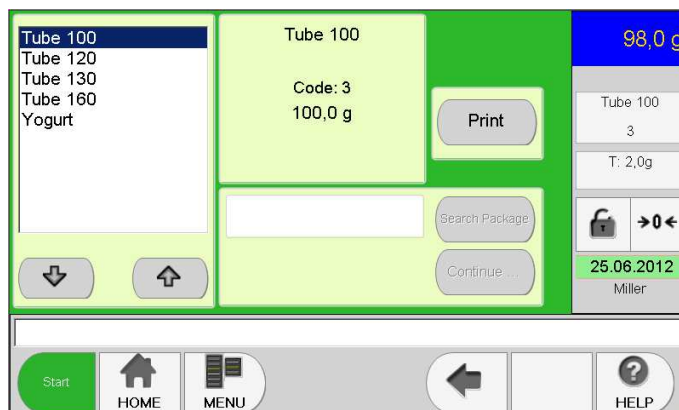
In order to verify the entered package data packages can be selected and printed out individually.

Note

Prerequisite for all the printing processes is the activation of the optional printer function.

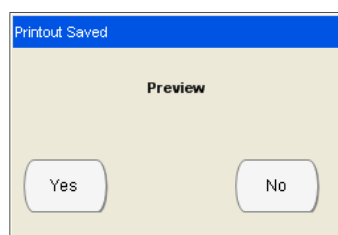
1. In the **basic screen** touch .
2. Select the menu items **Packages – Package Maintenance – Print Package**.

The following screen is displayed:



3. Select the desired package and touch .

The following message is displayed:



Note:

The message can be switched off.

→ Confirm with **No**.

- A PrintStick is inserted at the USB connection:

The printout is stored directly on the PrintStick.

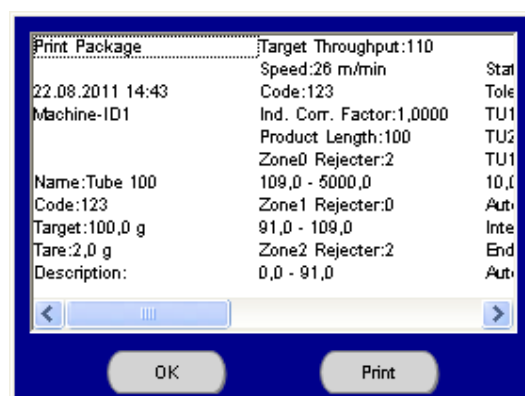
– or –

- No PrintStick available but a paper roll printer available:

The printout is stored at the stored printouts and can be printed from there (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

→ Confirm with **Yes**.

The print preview is displayed:



→ In order to store the printout in the print memory, touch

OK

The printout is stored at the stored printouts and can be printed from there (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

→ In order to print the printout onto a connected printer, touch

Print

The package-specific data – including optional components such as the feedback setup – are printed out in the form of a ticket.

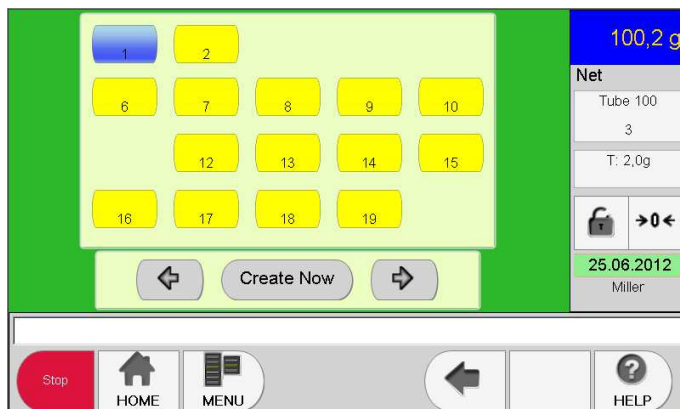
5.3 Creating a new package

Note

This screen is only available for users with a corresponding authorization.

1. In the **basic screen** touch .
2. Select the menu items **Packages – Package Maintenance – Create New Package**.

The following screen is displayed:

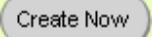


Note

Free package fields have a yellow background. A maximum of 100 packages (5 pages) can be created.  or  can be used to scroll page-by-page.

3. Search for a free package field and touch it, for example 1.

The color of the package field changes to blue.

4. Touch .

The **Main Package Setup** screen is displayed.

Parameters can now be defined and settings carried out for the new package. The new package is based on the parameters and settings of the package currently active.

The parameters of the package are distributed among the following screens that are described in detail in Chapter 4:

- 4.1 "Main Package Setup"
- 4.2 "Add. Package Setup"
- 4.3 "Limit Setup"

Note

Information about the settings for the activated options can be found in **X-Series System Manual Part 6: Options**.

For subsequent corrections use  to return to the footer of the screen or carry out changes later by using the **Edit Package** menu (see Chapter 5.4).

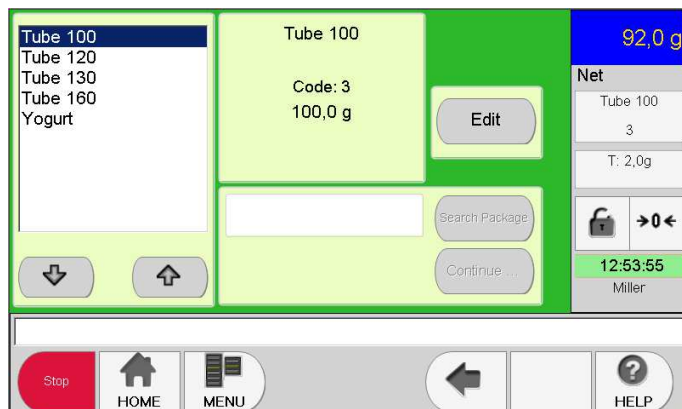
5.4 Edit Package

Note

This screen is only available for users with a corresponding authorization.

1. In the **basic screen** touch .
2. Select the menu items **Packages – Package Maintenance – Edit Package**.

The following screen is displayed:



3. Use  or  to select the desired package.
4. Touch .

The **Main Package Setup** screen is displayed.

The parameters of the package are distributed among the following screens that are described in detail in Chapter 4:

- 4.1 "Main Package Setup"
- 4.2 "Add. Package Setup"
- 4.3 "Limit Setup"

Note

Information about the settings for the activated options can be found in **X-Series System Manual Part 6: Options**.

5.5 Copy Package

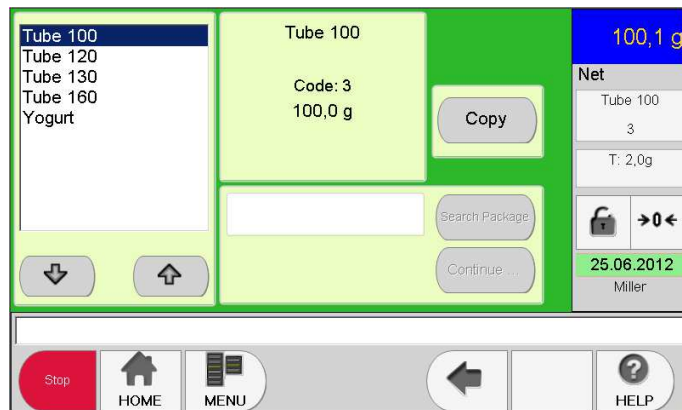
If many parameters can be used from an existing package for a new package, the package can be copied with all the parameter settings and adapted.

Note

This screen is only available for users with a corresponding authorization.

1. In the **basic screen** touch .
2. Select the menu items **Packages – Package Maintenance – Copy Package**.

The following screen is displayed:



3. Use  or  to select the desired package.
4. Touch .

The following screen is displayed:



5. Search for a free package field and touch it, e.g. field number 1.
The color of the package field changes to blue and  becomes active.
6. Touch .

The following screen is displayed:

The name of the copied package is displayed in the **Name** field with the addition "(Copy)".

7. Touch the name of the copied package.

The screen keyboard is displayed.

8. Enter the unique name of the new package and confirm with

Apply

Parameters can now be defined and settings carried out for the new package.

The parameters of the package are distributed among the following screens that are described in detail in Chapter 4:

- 4.1 "Main Package Setup"
- 4.2 "Add. Package Setup"
- 4.3 "Limit Setup"

Note

Information about the settings for the activated options can be found in **X-Series System Manual Part 6: Options**.

5.6 Delete Package

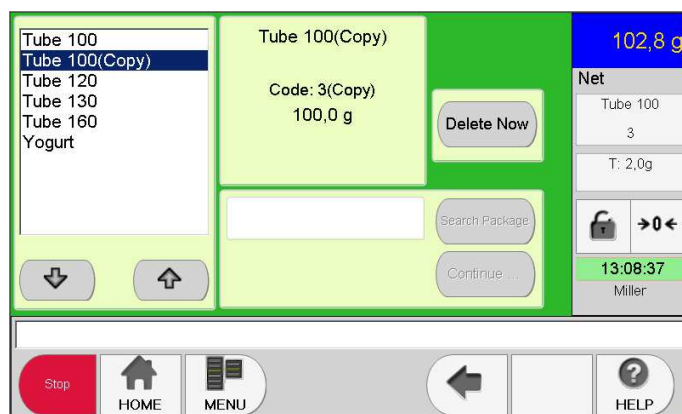
This function deletes a package completely from the package memory location including all of its master data.

Note

This screen is only available for users with a corresponding authorization.

1. In the **basic screen** touch .
2. Select the menu items **Packages – Package Maintenance – Delete Package**.

The following screen is displayed:



3. Use  or  to select the desired package.

Note

The current package, i.e. that activated for the weighings, cannot be deleted.

4. Touch .
5. Confirm the prompt with **Yes**.

The package is deleted, the memory slot is available again for the programming of a different package.

Note

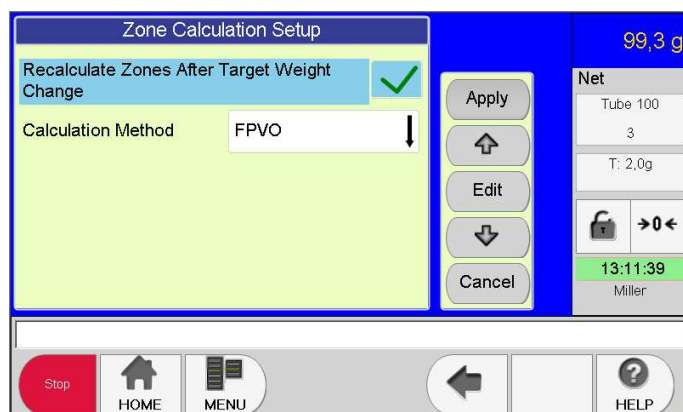
The last package in the package memory cannot be deleted since at least one package must always exist in the package memory.

5.7 Zone Calculation Setup

This menu allows you to have the weight zones recalculated automatically and the calculation method that is to be used specified after a change of the target weight.

1. In the **basic screen** touch .
2. Select the menu items **Packages – Zone Calculation Setup**.

The following screen is displayed:



The input fields have the following meaning:

Field	Description
Recalculate Zones After Target Weight Change	Green checkmark: Zone limits of a package are recalculated directly after the change of the target weight. Red dash: The zone limits of a package are to remain set as they are currently set despite the change in the target weight. The calculation is carried out on the basis of one of the following calculation methods.
Calculation Method	The following calculation methods can be selected: FPVO Calculation of the weight zones in accordance with the pre-packaged goods legislation. Absolute Offset When this option is selected, additional numerical fields are displayed in which the desired offset of the individual weight zones to the target weight is entered in g, see the example. The limit values are added absolutely to the target weight. The absolute offsets have to be entered in the current weight unit. Relative Offset The offsets have to be entered as a percentage. The limit values are added as a percentage to the target weight.

Example of calculation methods

Absolute Offset

The screenshot displays the 'Zone Calculation Setup' interface. The 'Calculation Method' is set to 'Absolute Offset'. The 'Offset Plus 2' is 10,00 and 'Offset Plus 1' is 5,00. The 'Offset Minus 2' is -10,00 and 'Offset Minus 1' is -5,00. A green checkmark indicates that 'Recalculate Zones After Target Weight Change' is enabled. The right side of the screen shows a current weight of 98,9 g and a net weight of 3. The bottom navigation bar includes buttons for Stop, HOME, MENU, a back arrow, and HELP.

The target value amounts to 100 g. The example assumes three weight zones.

- The Offsets Plus 1 and Minus 1 define the weight zone around the target value: Above the target value: 105 g, below the target value 95 g.
- The Offset Plus 2 defines the upper limit of the next weight zone above the target value: 110 g.
- The Offset Minus 2 defines the lower limit of the next weight zone below the target value: 90 g.

Relative Offset If the **Relative Offset** method has been selected and the target value is changed to 20 g, the limits for the weight zones are adapted automatically:

- Weight zone around the target value: 19 g or 21 g (5%)
- Limit of the upper weight zone: 22 g (10%)
- Limit of the lower weight zone: 18 g (10%)

6 Production data

6.1 Displaying weight zones

The number of pieces, the mean values and the total weight of the products for the defined weight classes are shown on this screen.

The displayed information is updated with every weighed product.

1. Touch the **Zones** section in the **basic screen**.

– or –

In the **basic screen** touch  and select the menu items **Production Data – Zones**.

The following screen is displayed:

Zone	Limits [g]	Counter	Weight Sum.	%
Zone0	[109,0 – MAX]	0	0,000	0,0
Zone1	[104,5 – 109,0]	42	4,424	1,5
Zone2	[95,5 – 104,5]	2128	210,83	78,3
Zone3	[91,0 – 95,5]	528	49,566	19,4
Zone4	[0,0 – 91,0]	20	1,797	0,7
Cnt 1		0		
Cnt 2		0		0
Extra		0		
Total		2718	266,6	

Final Evaluation

Setup

Print

95,9 g

Net

Tube 100

3

T: 2,0g

13:16:46

Miller

Stop

HOME

MENU

←

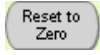
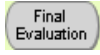
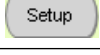
?

HELP

The following values are entered in the columns:

Column	Description
Zone	Weight zone, weight class
Limits [g]	Upper and lower limits of the respective weight zone
Classification sign >	Indicates the zone in which the product just weighed falls
Quantity	Number of products that were weighed in the respective weight zone.
Weight Sum.	Product of quantity and mean value
%	Distribution as a percentage of the weighed products to the respective weight zones
Metal	Option: Number of products that contain metal (only if a metal detector is used).
Extra	Total of all products for which no weight could be determined (e.g. due to metal, latch, distance faults)
Total	Total of all products, total mean value, total weight

The following buttons are available for editing this screen:

	All the counters are reset after confirmation of the prompt.
	In the case of the Statistics option the "Final Evaluation" key is displayed instead of the "Delete" key.
	Print current counter state (with preview).
	Change to the Limits screen.

6.2 Items

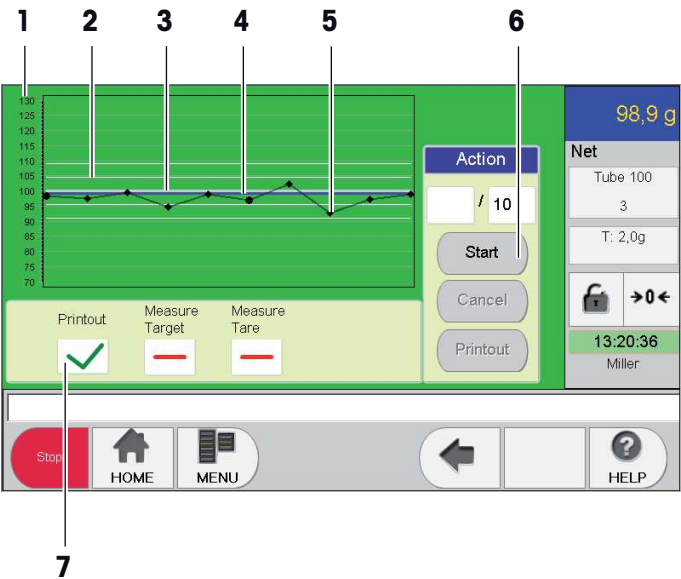
This screen displays the weight of each currently weighed product as a graph.

Four wizard functions support the determination of the production parameters:

- Print: Statistical checking of a production period (random sample) with a printout
- Measure target: Statistical checking of a production period (random sample) to determine and accept the target weight
- Measure tare: Statistical checking of a production period (random sample) in order to determine and accept the tare weight from empty packagings
- Sample Rejecter (option, not shown in the following screen see **X-Series System Manual Part 6: Options**): Statistical checking of a production period (random sample) with rejection of the samples and printout

1. In the **basic screen** touch .
2. Select the menu items **Production Data – Charts – Items**.

The following screen is displayed:



Item	Explanation
1	Weight axis
2	Limiting lines (white) of the weight zones
3	Line (gray) of the target weight
4	Line (blue) for mean value
5	Measuring point for each item
6	Controlling (starting, aborting, printing) of the wizard functions.
7	Selection field for the desired action. Only one action can be selected at any time.

Printing items

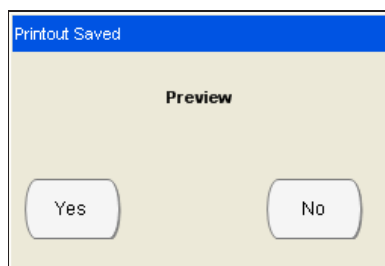
1. In the **Action** section activate the **Print** field.
The selected action is marked with a check mark.
2. If a different number of measurements than the displayed number is desired: Enter the desired number of the products in the **Print** section into the / field behind the slash.
3. Touch .

Individual value recording begins. The recorded products have a number assigned consecutively via the measuring points:



After measuring has expired, a record of the recorded measured values is displayed if no printer is available.

If a printer is available, the following message is displayed:



→ Confirm with **No**.

– A PrintStick is inserted at the USB connection:

The printout is stored directly on the PrintStick.

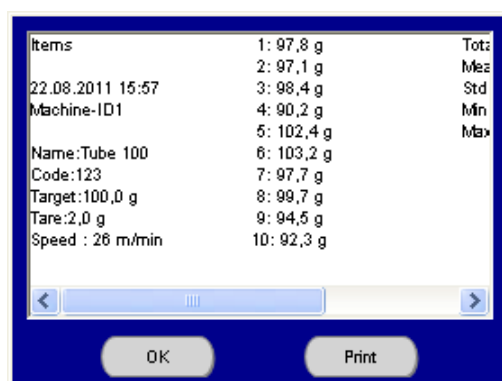
– or –

– No PrintStick available but a paper roll printer available:

The printout is stored at the stored printouts and can be printed from there (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

→ Confirm with **Yes**.

The print preview is displayed:



→ In order to store the printout in the print memory, touch

OK

The printout is stored at the stored printouts and can be printed from there (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

→ In order to print the printout onto a connected printer, touch

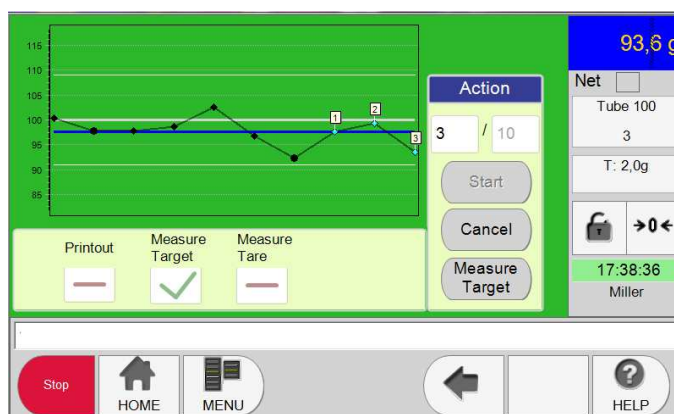
Print

The report can be printed out in the menu **Information – Stored Printouts** (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

6.2.1 Determining the target weight for the package

1. In the selection field for the desired action activate the **Measure Target** field.
2. If a different number of measurements than the displayed number is desired: Enter the desired number of the products in the **Measure Target** section into the / field behind the slash.
3. Touch .

Individual value recording begins. The recorded products have a sequential number assigned via the measuring points:



The determined target weight is displayed after complete measuring has been finished or after premature aborting with the **Measure Target** key.

In order to accept the newly determined weight as the target weight for the current package touch **Yes**. The checkweigher requires a final evaluation. The data of the current package are accepted and are displayed on the **basic screen** at the right in the middle.

The target weight can be determined by means of a wizard function.

The final evaluation can be printed out in the menu **Information – Stored Printouts** (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

6.2.2 Determining the tare of the packagings

In order to determine the tare weight of the checkweigher feed in empty packagings.

1. In the selection field for the desired action activate the **Measure Tare** field.
2. If a different number of measurements than the displayed number is desired: Enter the desired number of packagings in the **Measure Tare** section into the field behind the slash .
3. Touch .

Individual value recording begins. The recorded empty packagings have a sequential number assigned via the measuring points.



The measured tare weight is displayed after complete measuring has been finished or after premature aborting with the **Measure Tare** key.

In order to accept the newly measured tare weight for the current package touch **Yes**. The checkweigher requires a final evaluation. The data of the current package are accepted and are displayed on the **basic screen** at the right in the middle.

The tare weight can be determined by means of a wizard function.

The final evaluation can be printed out in the menu **Information – Stored Printouts** (see "Stored Printouts" option in the **X-Series System Manual Part 6: Options**).

6.3 Large Weight Display

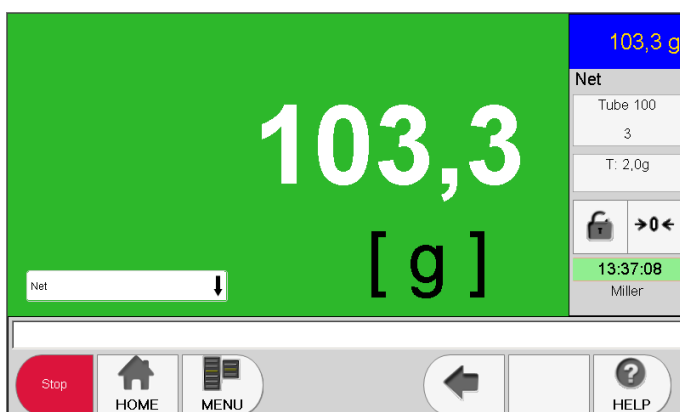
If you select the **Large Weight Display** menu, the weight display is enlarged to fill the entire middle screen area. This is to improve readability at a distance.

1. In the **basic screen** touch the weight display in the upper section.

– or –

In the **basic screen** touch  and select the menu items **Production Data – Large Weight Display**.

The following screen is displayed:



2. In order to change the display parameters, touch the list field.
3. To return to the **basic screen**, touch the weight display at the top right or .

At the large weight display you can choose between:

- Gross weight
- Net weight
- Mean value
- Difference (actual weight to target weight)

7 Information

In this menu you can call up different menu items that provide information about the course of the weighings or of the production.

7.1 Messages

Important system information, errors and alarms are displayed in a window of the **basic screen** – however only the most recent message.

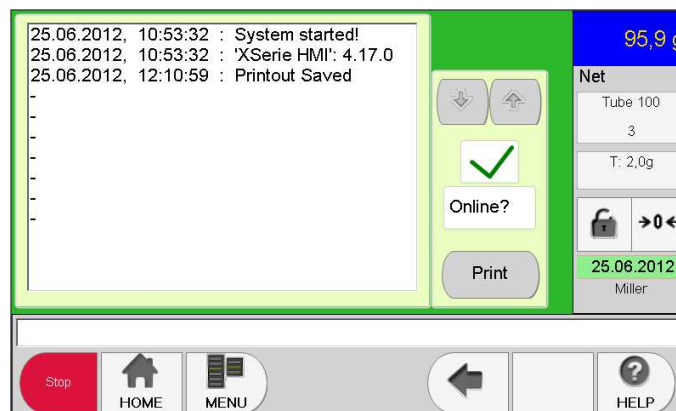
All the information from booting of the software on is logged continuously in the **Messages** menu. New entries are added at the end of the list.

1. Touch the information field with the current message in the **basic screen**.

– or –

In the **basic screen** touch  and select the menu items **Information – Messages**.

The following screen is displayed:



2. Use  and  to scroll through the log line-by-line to check the entries.

Note

As long as the page is not full yet, the arrow keys are grayed out (not active).

You can print the messages of the current page by touching the command button.

Note

If you want to view older messages, you can interrupt continuous logging as follows:

1. Touch the field above **Online?**.

Instead of   is displayed and logging is deactivated temporarily. New lines are not added at the bottom.

2. Look for the desired log entry and, if wished, print out the current page.

3. In order to reactivate the logging function touch .

 is displayed, the logging function is activated again.

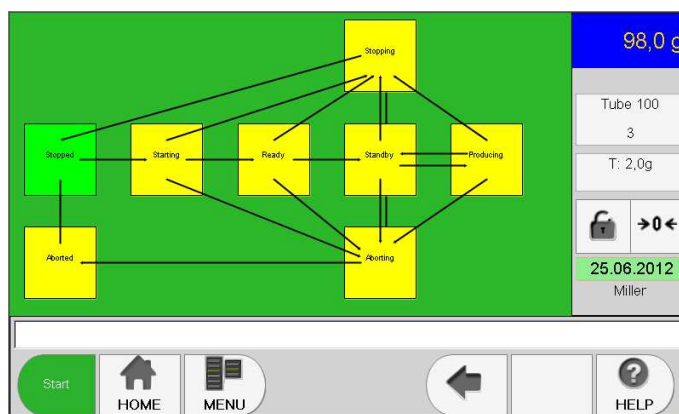
7.2 Status

7.2.1 OMAC Machine Status

The **OMAC** (**O**pen **M**odular **A**rchitecture **C**ontrols) machine status can be used to call up information about the current status of the weighing terminal (e.g. producing, stopped, etc.). The individual program steps from one status to the next can be tracked on the basis of arrows.

1. In the **basic screen** touch .
2. Select the menu items **Information – Status – OMAC Machine Status**.

The following screen is displayed:



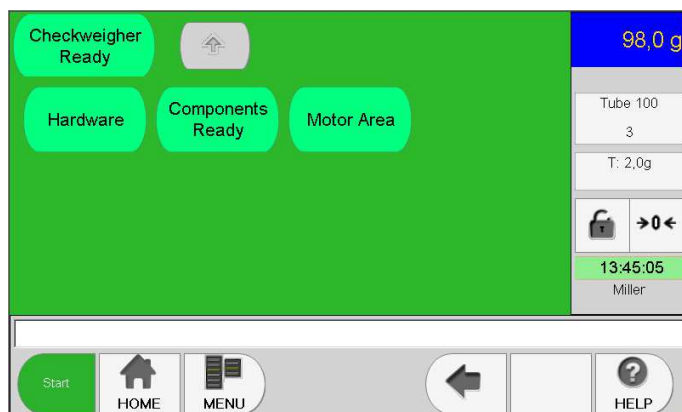
The respective current status is displayed green.

7.2.2 Components Status

The current state of the components (motors, weighcell, light barriers) is displayed in the **Components Status** menu so error situations can be localized.

1. In the **basic screen** touch .
2. Select the menu items **Information – Status – Components Status**.

The following screen is displayed:



The parts of the hardware and the components are displayed as command buttons.

- If all the components are OK, the highest level is displayed green.
 - If a component is not OK, the command buttons of all the higher-level components are displayed red.
3. In order to determine defective components navigate step-by-step through the hierarchy until the defective part has been determined.
 4. Use  to return step-by-step to the highest level.

Displaying defective components

In the case of a defect or a malfunction of a part the command button of the higher-level component becomes red.

1. Touch the red command button.
The parts of the component are displayed.
2. Touch the red command buttons of the lower-level parts until the defective part has been determined.

7.2.3 Output Info / Input Info

These two screens provide an overview of the assignment of the various inputs and outputs.

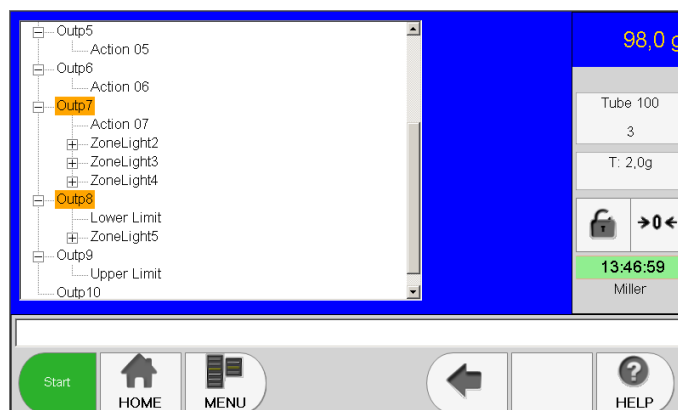
Note

These screens are only displayed for users with a corresponding authorization.

Outputs 1. In the **basic screen** touch .

2. Select the menu items **Information – Status – Output Info**.

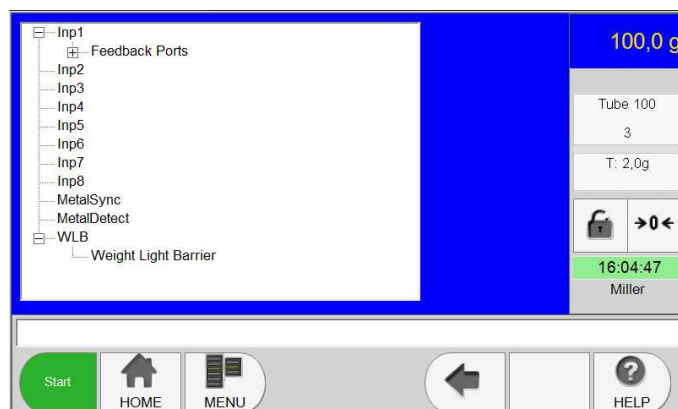
The following screen is displayed:



Inputs 1. In the **basic screen** touch .

2. Select the menu items **Information – Status – Input Info**.

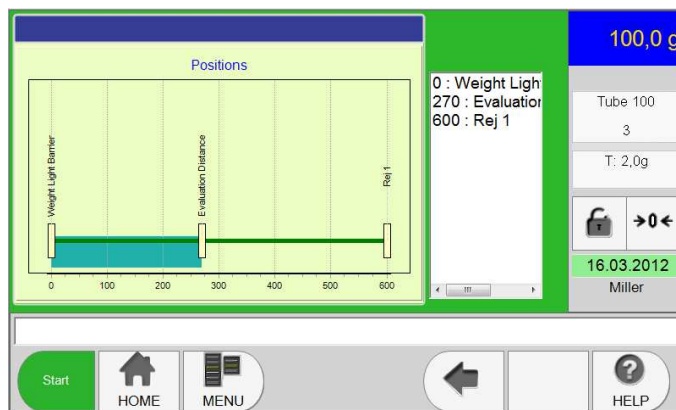
The following screen is displayed:



7.2.4 Positions of the device components

1. In the **basic screen** touch .
2. Select the menu items **Information – Status – Positions**.

The following screen is displayed:



The distances of the components from the weight light barrier are specified in mm on the axis.

7.3 System Information

This menu can be used to call up information about the following categories:

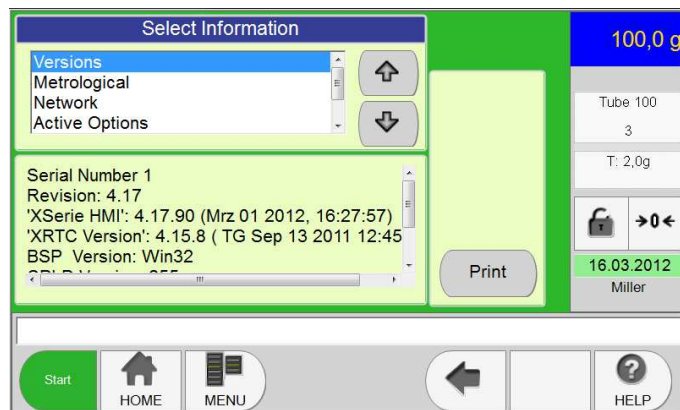
- Installed software versions
- Metrology (only for certified checkweighers)
- Network
- Active options
- Motor
- CPU

The quantity and designation of the categories as well as the scope of the information provided can vary.

1. In the **basic screen** touch .

2. Select the menu items **Information – System Information**.

The **System Information** that for example contains the following information is displayed:



3. Use  and  to select the desired category.

8 Exporting and importing data

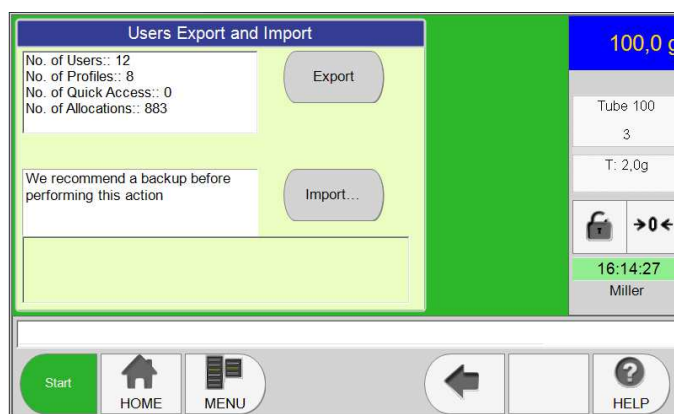
The settings in this menu may only be carried out by users having the corresponding authorizations.

8.1 User data export and import

In this menu the user data currently stored in system can be exported or imported using a USB stick. If several checkweighers are operated by the same user group, this user group only needs to be created once and can then be imported at the other systems.

1. In the **basic screen** touch .
2. Select the menu items **Setup – Users – Users Export and Import**.

The following screen is displayed:



The upper section displays a user overview that can be exported to a USB stick.

- Export**
1. Insert the USB stick into the USB port.
 2. Touch .

The system stores all the existing user data completely on the USB stick.

Note

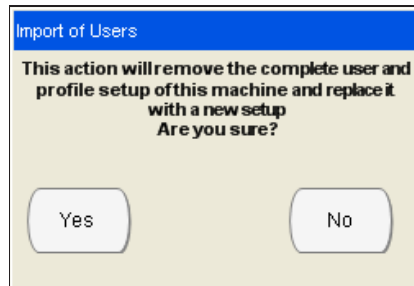
If no USB stick is inserted, a corresponding system message is displayed when  is touched.

Import Note

Before importing user profiles always carry out a backup of the configuration (see Chapter 8.3 "Data backup").

1. Insert the USB stick into the USB port.

To prevent unintentional overwriting of the existing data the following prompt is displayed after **Import...** has been touched:



2. Confirm the message with **Yes**.

The new user group is imported.

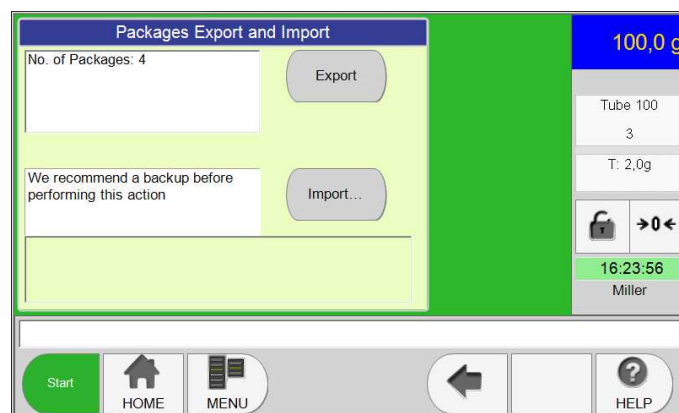
8.2 Packages Export and Import

In this menu all the stored packages with the corresponding settings can be exported and imported as a group. The package group is stored in a directory named after the checkweigher serial number on a USB stick. During importing the serial number is used to select the checkweigher whose package data are to be imported.

This function is useful if the same package group is to be imported into several systems or if the package groups often change on a system.

1. In the **basic screen** touch .
2. Select the menu items **Packages – Packages Export and Import**.

The following screen is displayed:



The upper field displays the number of stored packages that can be exported with the corresponding package settings to a USB stick and can be saved in a directory names after

the serial number.

- Export**
1. Insert the USB stick into the USB port.
 2. Touch .

The system stores the package data to the USB stick.

Note

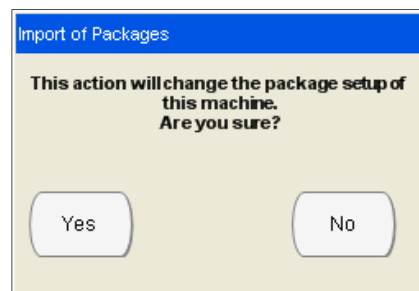
If no USB stick is inserted, a corresponding system message is displayed when  is touched.

Import Note

- Package data can only be imported if all the package names are unique.
- Before importing package data always carry out a backup of the configuration (see Chapter 8.3 "Data backup").

1. Insert the USB stick into the USB port.

In order to prevent unintentional overwriting of the data, the following message is displayed after  has been touched:



2. Confirm the message with **Yes**.
3. Select a file and confirm with **OK**.

Example path: <Drive>/XS/<SerialNumber>/Transfer/ExportPackages.XML

The new package data are imported.

Note

The messages and outputs assigned to the package under **Limit Setup – Actions** are not exported since these are strongly machine-dependent Package-related messages and outputs may therefore have to be re-entered after the import, see Section 9.2.3 "Allocating actions to the weight zones".

The **Data Backup** function is used to store all the parameters (see Chapter 8.3 "Data backup").

8.3 Data backup

A data backup should be carried out after every change to the system. The data can be stored on an internal medium, but should preferably also be saved to an external USB stick. The last three backups respectively are stored in the folders A, B and C. A new backup is always stored in Folder A. Older backups are moved to the Folders B and C. The oldest backup is deleted from Folder C and is replaced by the backup from Folder B. The data backup contains the configuration, the user profiles and the packages. The production data (statistics, counter readings) are not backed up.

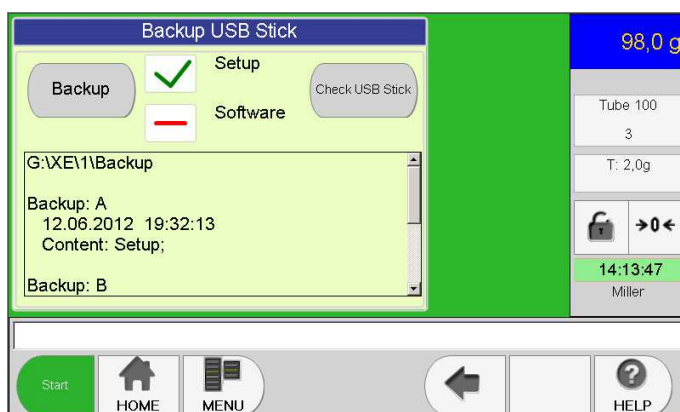
External data backups of different checkweighers can be stored on the same USB stick and kept reliably.

User profiles and packages can also be backed up separately (see Chapters 8.1 and 8.2).

8.3.1 Backup to a USB Stick

1. Insert the USB stick into the USB port.
2. In the **basic screen** touch .
3. Select the menu items **Maintenance – Data Backup – Backup USB Stick**.

The following screen is displayed:



4. Activate the **Configuration** field.

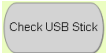
Note

The **Software** field may not be activated.

5. Touch .

The data are stored to the USB stick.

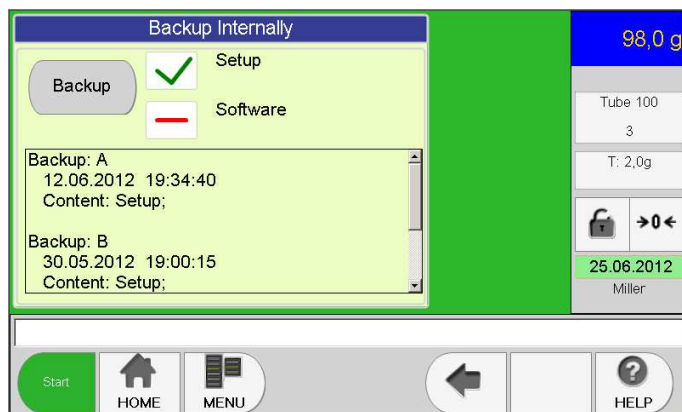
Note

Touch  to check the functionality of the USB stick.

8.3.2 Backup Internally

1. In the **basic screen** touch .
2. Select the menu items **Maintenance – Data Backup – Backup Internally**.

The following screen is displayed:



3. Activate the **Configuration** field.

Note

The **Software** field may not be activated.

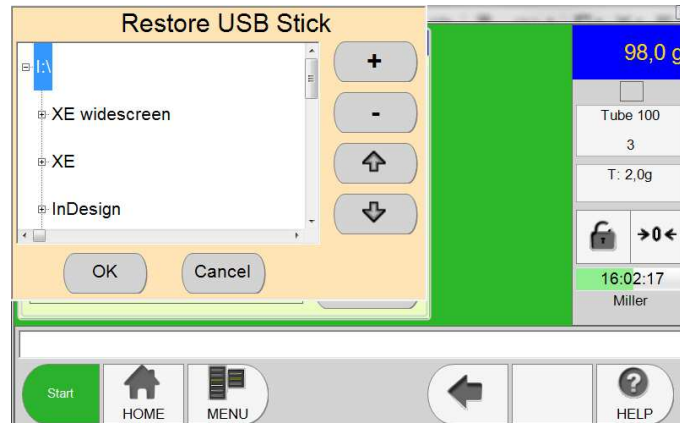
4. Touch .

The data are transferred to the internal storage medium.

8.3.3 Restoring from the USB stick

1. Insert the USB stick into the USB port.
2. In the **basic screen** touch .
3. Select the menu items **Maintenance – Data Backup – Restore USB Stick**.

The following screen is displayed:

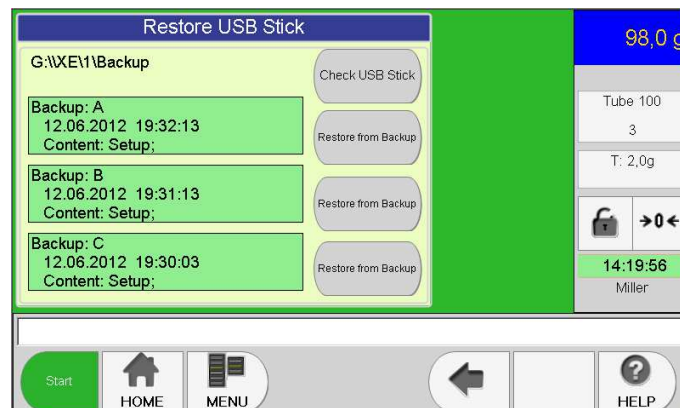


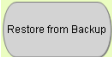
Note

You can use  or  to navigate within the structure and select a folder. A folder can be opened with  and closed with .

4. Select a folder and confirm with **OK**.

The following screen with the last three data backups is displayed.



5. Touch  to select the data you wish to restore and confirm the selection with **Yes**.

An additional window with a reddish background is displayed. The import process has been completed as soon as "READY!!!" is displayed in the lowest line of this screen.

6. Touch the gray button **Start XMAIN**,

The checkweigher starts with the imported configuration.

Note

Touch  to check the functionality of the USB stick.

8.3.4 Restore Internally

1. In the **basic screen** touch .
2. Select the menu items **Maintenance – Data Backup – Restore Internally**.

The following screen is displayed:



3. Touch  for the files that you wish to restore.

An additional window with a reddish background is displayed. The import process has been completed as soon as "READY!!!" is displayed in the lowest line of this screen.

4. Touch the gray button **Start XMAIN**,

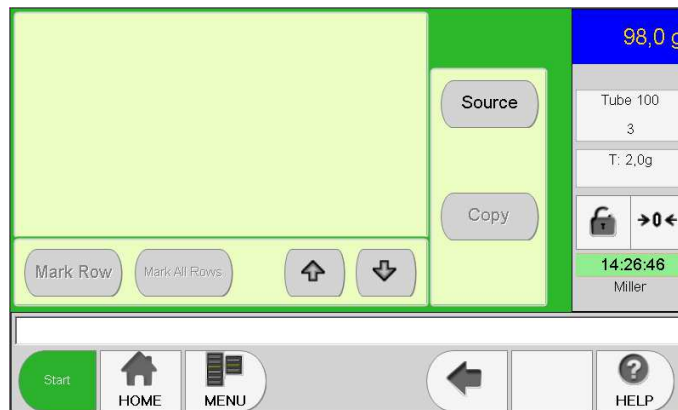
The checkweigher starts with the imported configuration.

8.4 File Copy

This function supports the provision of additional information to the after-sales service.

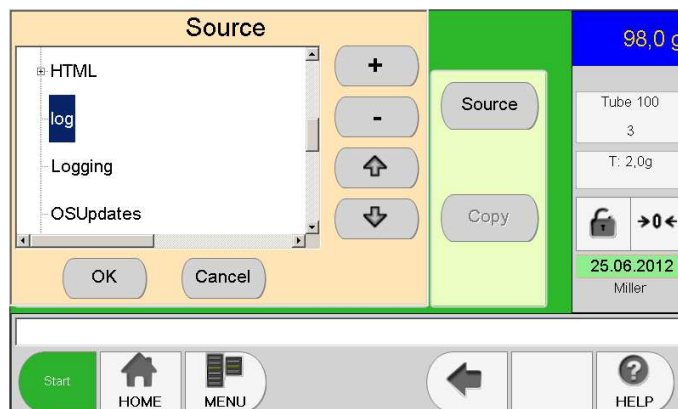
1. Insert the USB stick into the USB port.
2. In the **basic screen** touch .
3. Select the menu items **Maintenance – File Copy**.

The following screen is displayed:



4. Touch .

The following screen is displayed:



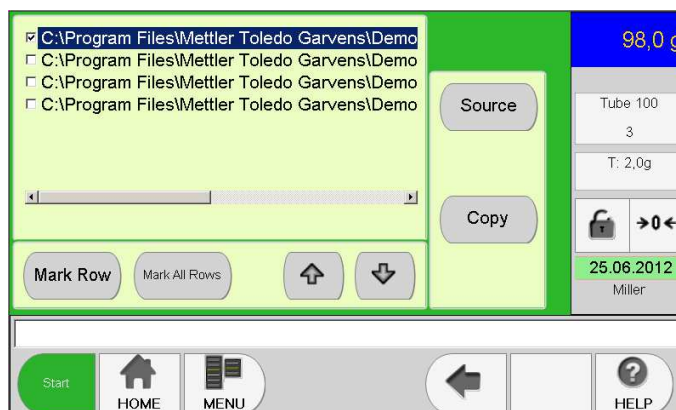
Note

You can use  or  to navigate within the structure and select a folder.

A folder can be opened with  and closed with .

5. Select the **Log** folder and confirm with **OK**.

The following screen is displayed:



Note

You can use **Mark All Rows** to activate or deactivate all the files in one go.

6. Use **↑** or **↓** to select the desired line(s) and touch **Mark Row** each time.

The box at the line beginning is activated.

7. Touch **Copy**.

The file transfer is confirmed by a message box. Transferred files are stored on the USB stick in a directory named after the serial number and then deleted automatically on the checkweigher.

9 Setup

Setup settings may only be carried out or modified by users with higher access authorizations, e.g. **Supervisor** or **Administrator**. **Operators** partially have the possibility of having these settings displayed.

9.1 User management

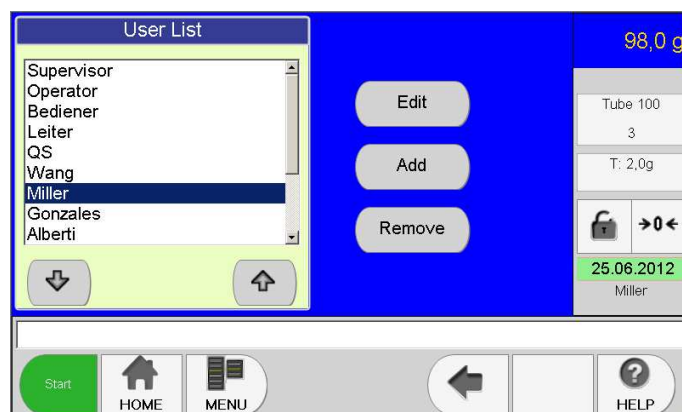
9.1.1 Editing, adding, removing users

All the persons who may work with the weighing terminal are listed in the user list. A password, a user profile and the language are assigned to each user name.

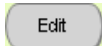
Displaying or editing a user

1. In the **basic screen** touch .
2. Select the menu items **Setup – Users – Edit Users**.

The following screen is displayed:



Note

- If the cursor is positioned on a user whom you may not edit, for example **Admin**, the  is not active.
 - A user can only change his own password. However another user can be removed and added with a new password.
3. Select the user whose properties are to be changed from the list of all the users by touching  or .
 4. Touch .

The following screen is displayed:

5. Touch the input field whose content is to be changed.
6. Use the screen keyboard to enter a changed name or a new password or select a new profile or a different language from the list fields.

Note

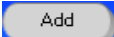
The password is always represented by ****. It is not visible in plain text even when it is entered.

We recommend writing down the passwords and keeping them in a safe place. If a Supervisor password is lost or forgotten, access can only be restored by the after-sales service.

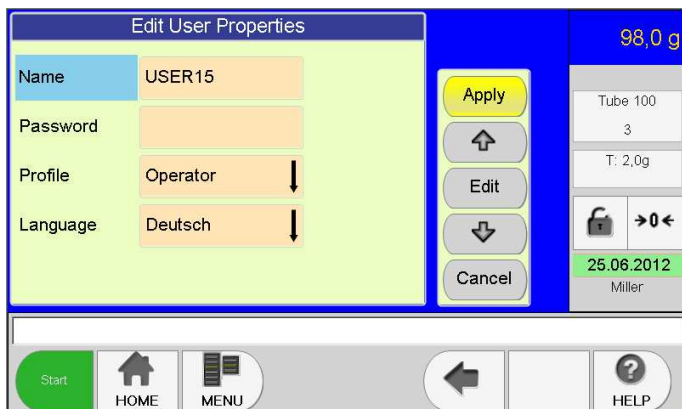
7. Touch  to save the entries.

Note

If a user is selected from the list whom you may not edit, the following message is displayed:

- Adding a user** 1. In the **Edit Users** touch the button .

The following screen is displayed:



A placeholder (e.g. USER15) is positioned in the input field next to the **Name**.

2. Touch the input field next to **Name**.

The screen keyboard is displayed.

3. Enter the name by touching the keyboard fields and confirm with **OK**.
 4. Touch the input field next to the **Password**, enter the password and confirm with **OK**.
 5. Enter the new password once more for confirmation and confirm with **OK**.

Note

The password is always represented by ****. It is not visible in plain text even when it is entered.

We recommend writing down the passwords and keeping them in a safe place. If a Supervisor password is lost or forgotten, access can only be restored by the after-sales service.

6. Touch the input field next to **Profile**.

The list field with the profiles (access authorizations) is displayed.

7. Select the desired profile and confirm with **OK**.
 8. Touch the input field for **Language**.
 9. Select the desired language from the list field and confirm with **OK**.
 10. Save all the entries with .

Removing a user

1. From the **User List** select the desired user and touch .
2. Confirm the prompt with **Yes**.
3. Save with .

9.1.2 Editing, adding and removing user profiles

The screens (rights) that are allocated to a user, meaning what actions it may take at the checkweigher and what not, is defined in the user profile for each user. A user profile has to be allocated to each user.

1. In the **basic screen** touch .
2. Select the menu items **Setup – Users – Edit Profiles**.

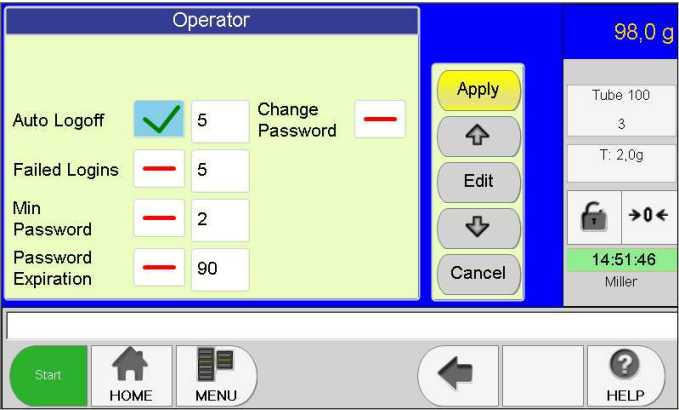
The following screen is displayed:



Displaying or editing a user profile

- 1. Select the desired profile in the **Profile List** by using  or .
- 2. Touch .

The following screen is displayed:



The status of the respective parameter is displayed as follows:

	Parameter is activated for the respective profile.
	Parameter is not activated.

Touching a parameter or the corresponding activation field is used to toggle between "activated" (field has a blue background) and "deactivated" (field has a pink background).

The following parameters can be activated:

Name	Description
Auto Logoff	Number of minutes after which the system logs a user off automatically when no entry has been made.
Failed Logins	Number of failed logins after which a user is blocked.
Min Password	Minimum number of characters that a password must have.
Password Expiration	Number of days after which a password has to be changed.
Change Password	Forces the user to immediately change a password assigned by the administrator after the first login.

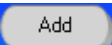
For further information see **X-Series System Manual Part 5: Information for administrators**.

Adding a user profile

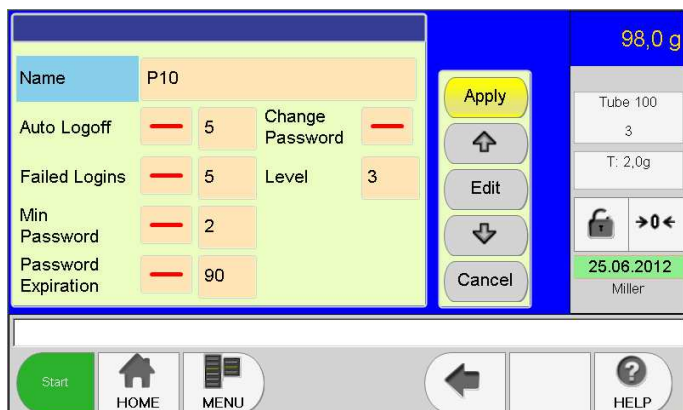
1. In the **basic screen** touch the menu button .
2. Select the menu items **Setup – Users – Edit Profiles**.

The following screen is displayed:



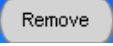
3. Touch .

The screen for the new user profile is displayed with a placeholder in the **Name** field (e.g. P10):



4. Touch the input field next to **Name**.
The screen keyboard is displayed.
5. Enter the name by touching the keyboard fields and confirm with **OK**.
6. If necessary activate or change the parameters.
7. Save all the entries with .

Removing a user profile

1. Select the desired profile in the **Profile List** section using  or  and touch .
2. Confirm the prompt with **Yes**.
3. Save with .

9.1.3 Allocating screens to the user profiles

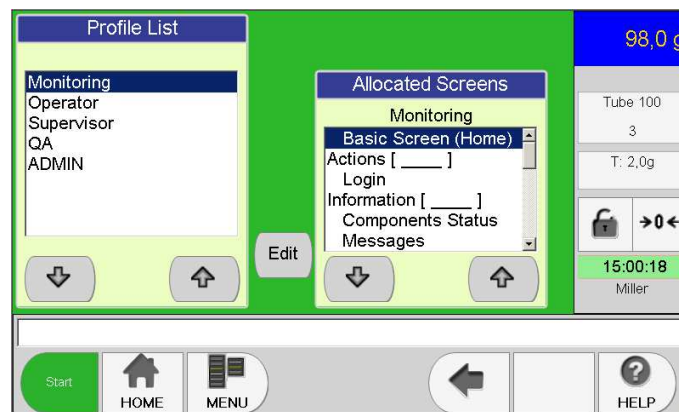
A specific profile has to be allocated to users who operate the weighing terminal. This menu is used to specify the functions and parameters (screens) which the user can activate, change and enter.

Note

Tried and tested parameters are pre-assigned in the factory to the supplied profiles (e.g. **Supervisor, Operator**). These settings can be edited by users with the appropriate authorization level.

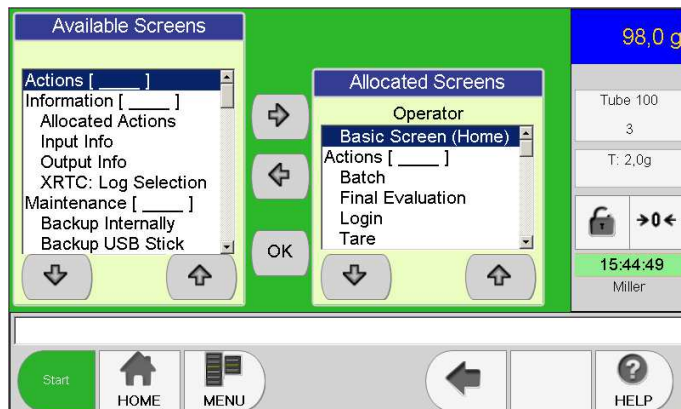
1. In the **basic screen** touch .
2. Select the menu items **Setup – Users – Assign Profiles**.

The following screen is displayed:



- All the user profiles are listed in the **Profile List**.
 - Only those functions and settings that are allocated to the respective profile are listed in the **Allocated Screens** section.
3. Select the desired profile in the **Profile List** section.
 4. Touch .

The following screen is displayed:



- All the functions and settings that can be carried out or set at the weighing terminal are listed in the **Available Screens** section. The list is sorted by the main menus. The entries can be moved from there into the **Allocated Screens** section.

Adding screens → Select the desired screen in the **Available Screens** section and use  to move it into the **Allocated Screens** section.

Note

If all the screens of a main category are to be transferred to the **Allocated Views** section, mark the main category and touch .

Removing screens 1. Select the desired screen in the **Allocated Screens** section and use  to move it into the **Available Screens** section.

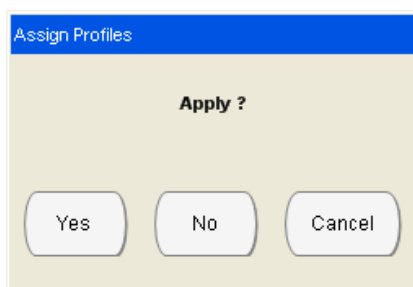
The screens are displayed in the **Available Screens** section.

Note

If all the screens of a main category are to be transferred back from the **Allocated Screens** section to the **Available Screens** section, mark the main category and touch .

2. If the **Allocated Screens** section contains the desired views, touch  or .

The following prompt is displayed:



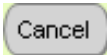
3. Touch **Yes** to accept the entries.

– or –

Touch **No** to reject the entries.

The system returns to the **basic screen**.

Note

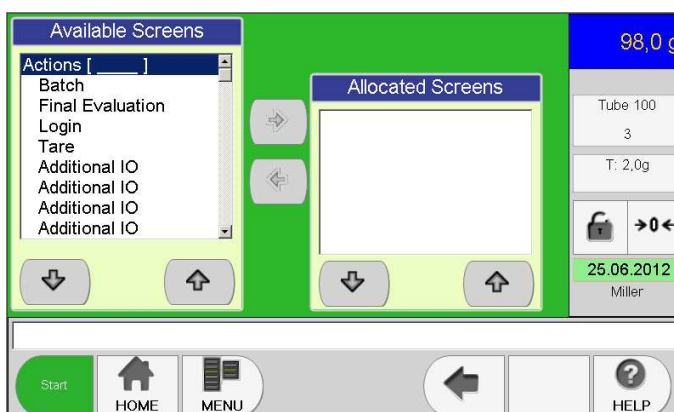
If you touch , you return to the previous screen. You have to respond **Yes** or **No** to the prompt in order to return to the **basic screen**.

9.1.4 Configuring the Quick Access Setup

Screens that are enabled for this profile can be selected in the **Quick Access Setup** menu. The selected screens appear in the **Quick Access** menu item and can be called up directly.

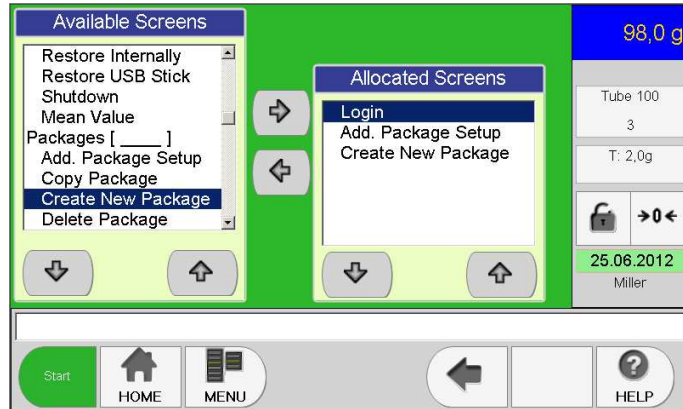
1. In the basic screen touch .
2. Select the menu items **Setup – Users – Quick Access Setup**.

The following screen is displayed:



- Adding / removing screen** 3. In order to add a screen select the desired screen in the **Available Screens** by using  or  and touch .

Added views are displayed in the **Allocated Views** section:



4. In order to remove a screen from the **Allocated Screens** use  or  to select the corresponding view and touch .
5. If the **Allocated Screens** section contains the desired views, touch  or .
- A prompt is displayed.
6. Confirm the prompt with **Yes**.
- The system returns to the **basic screen**.

Note

If you touch , you return to the previous screen. You have to respond **Yes** or **No** to the prompt in order to return to the **basic screen**.

9.2 General

9.2.1 Setting the time

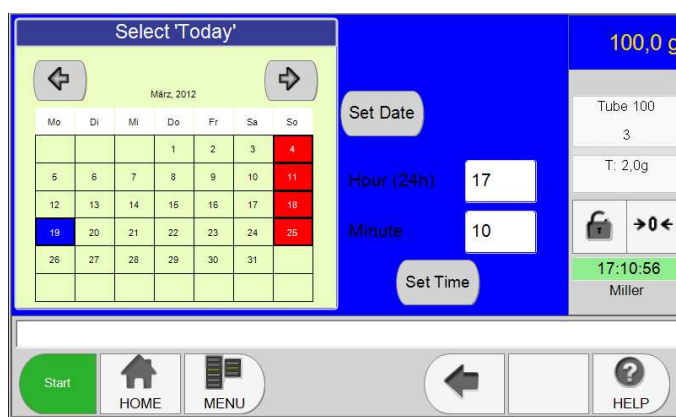
In this menu the current system time whose data are displayed in all the screens and also on the statistics printouts can be entered.

The system date can only be entered or modified by the after-sales service.

1. In the **basic screen** touch .

2. Select the menu items **Setup – General – Time and Date**.

The following screen is displayed:



3. Touch the **Hour** field and enter the hour in the input field that is displayed.

4. Touch the **Minute** field and enter the minutes in the input field that is displayed.

5. Touch the **Set Time** button.

The time is stored.

9.2.2 Rejecter Settings

Note

These settings may only be carried out by users having the corresponding authorization.

Note

The following parameters apply to all the packages in common. In addition the delay can be changed for each package individually.

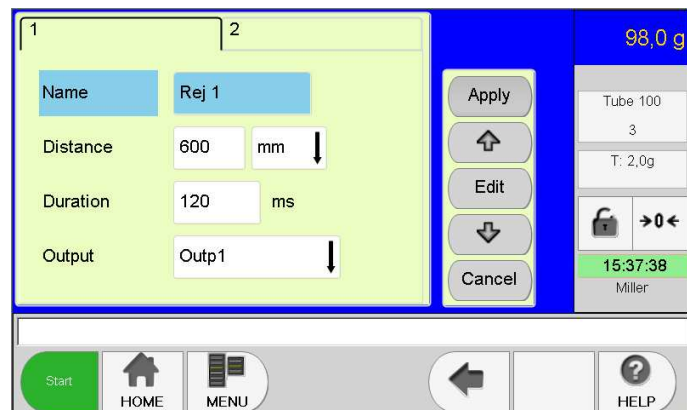
1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Setup – General – Rejecter Settings**.

The following screen is displayed:



3. In the **Rejecter List** use  or  to select the desired rejecter.
4. Touch .

The following screen is displayed:



5. Touch the field to be changed (Name, Distance, Duration or Output).
Depending on the field either the screen keyboard, the numerical keypad or a list field is displayed.
6. Enter the new value or select the corresponding list entry and confirm with **OK**.
7. To change the delay touch **Tab 2**.

The following screen is displayed:

The screenshot shows a touch-screen interface for configuring a rejecter. The screen is divided into several sections:

- Top Left:** Two tabs labeled '1' and '2'. Tab '2' is selected.
- Main Area (Left):** A light green box containing the configuration fields:
 - Rejecter Type:** A dropdown menu showing 'Pusher X3' with a downward arrow.
 - Delay Offset (+100):** A numerical input field showing '0' followed by 'ms'.
- Main Area (Right):** A blue vertical bar with four buttons: 'Apply' (top), an up arrow, 'Edit', and a down arrow. Below these is a 'Cancel' button.
- Top Right:** A grey box displaying '98,0 g'.
- Bottom Right:** A grey box displaying 'Tube 100', '3', 'T: 2,0g', a lock icon, '15:42:19', and 'Miller'.
- Bottom Bar:** A grey bar with several icons: a green 'Start' button, a 'HOME' icon, a 'MENU' icon, a back arrow, and a 'HELP' icon with a question mark.

Note

The delay specifies the allowance that compensates the lag of the rejecter.

8. Touch the input field and enter the new value on the numerical keypad.
9. When all the parameters have been entered, touch **Apply**.

The parameters for the selected rejecter are stored.

9.2.3 Allocating actions to the weight zones

In the **Zone Actions** specific actions can be allocated to the various weight zones of the current package, i.e. different rejecters, outputs or messages such as "Overload", "Underload" or "Belt Stop".

1. In the **basic screen** touch .
2. Select the menu items **Setup – General – Zone Actions**.

The following screen is displayed:



- The **Action List** section lists all the actions that are still available and that can be allocated to the selected zone.
- The **Allocated Actions** section lists all the actions that are still available and that can actually be allocated to the selected zone.

Adding / removing action

1. In order to add an action select the desired action in the **Action List** section by using  or  and use  to move it to the **Allocated Actions** section.

– Or –

In order to remove an action select the desired action in the **Allocated Actions** section by using  or  and use  to move it to the **Action List** section.

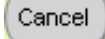
2. If the **Allocated Actions** section contains the desired actions, touch  or .

A prompt is displayed.

3. Confirm the prompt with **Yes**.

The system returns to the **basic screen**.

Note

If you touch , you return to the previous screen. You have to respond **Yes** or **No** to the prompt in order to return to the **basic screen**.

9.2.4 Miscellaneous Setup

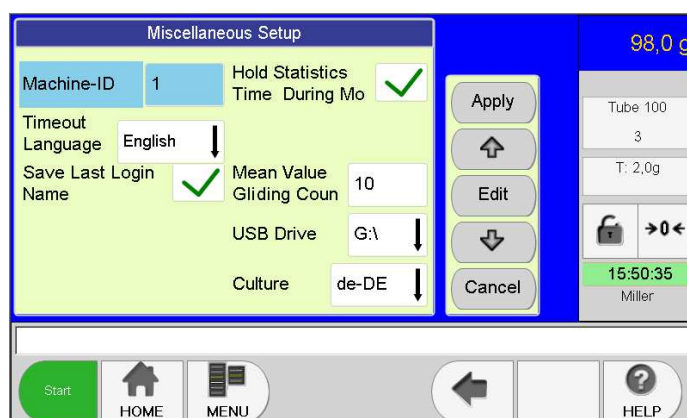
This menu contains basic settings for a multitude of functions that are usually only set once.

Note

These settings may only be carried out by users having the corresponding authorization.

1. In the **basic screen** touch .
2. Select the menu items **Setup – General – Miscellaneous Setup**.

The following screen is displayed:



The input fields have the following meaning:

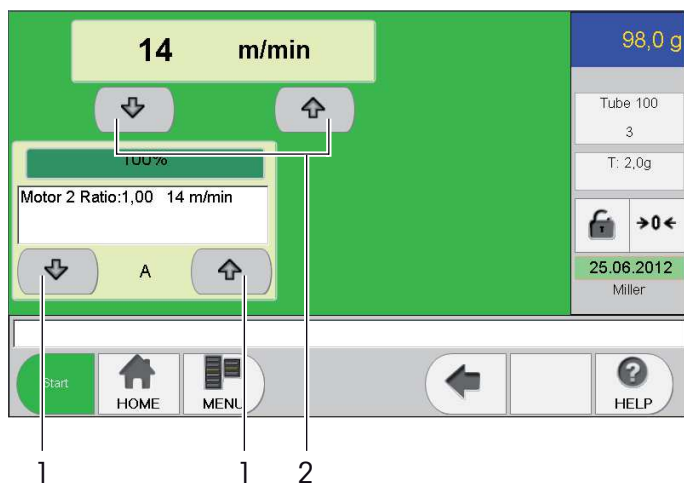
Field	Description
Machine-ID	Use for unique identification of the checkweigher, for example for printouts or in the network.
Timeout Language	The basic language used by the checkweigher as long as no user is logged in.
Save Last Login Name	Activated: During the login the last login name used is suggested. Deactivated: During the login no user is suggested.
Hold Statistics Time During Motor Stop	Time measuring is stopped during a belt stop.
Mean Value Gliding Count	Mean weight value of the respective weight zone.
USB Drive	Selection of the USB drive.
Culture	Country-specific features such as display of time/date, character set. Note The selection set here may not be changed!

9.3 Motor

9.3.1 Changing the belt speed

1. In the **basic screen** touch .
2. Select the menu items **Setup – System – Motor – Speed**.

The following screen is displayed:



The belt speed is displayed digitally in m/min.

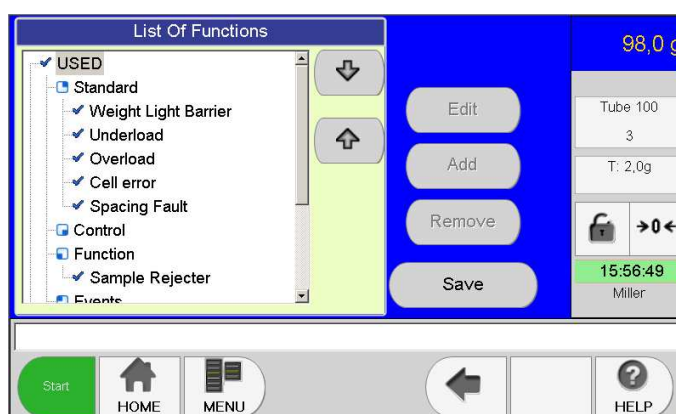
3. Use the arrow buttons (2) to increase or decrease the belt speed, and the arrow buttons (1) to regulate the relative speed of an additional motor group "A" depending on Motor 1 (option).

9.4 Function Allocations

This function offers the possibility of editing specific functions for the current operation in agreement with the after-sales service. Since the list of functions depends on the respective configuration, it can contain more or less entries or even other entries for a concrete checkweigher.

1. In the **basic screen** touch .
2. Select the menu items **Setup – System – Function – Function Allocations**.

The following screen is displayed:



All the functions and options are listed in the **List Of Functions** section.

The functions that are available are listed in the upper main group **USED**.

The main group **USED** is subdivided into four groups that facilitate finding of specific functions. Some of the options are activated or deactivated via the package setup, e.g. "Statistics" and are not listed here.

Editing parameters of functions **Note**

Change the parameters of the functions only in agreement with the after-sales service!

- Select the desired function with  or  and touch .

The section belonging to the function is displayed and the parameters can be adjusted, for example allocating outputs and inputs or actions.

10 Error messages, faults and emergency run

If you are experiencing persistent problems and wish to contact our after-sales service/hotline, please have as many details as possible ready:

- Type (model)
- Serial number
- Year of manufacture
- METTLER TOLEDO Garvens order number and date (if known)
- Displayed software version of the weighing terminal
- Precise wording of the displayed error message or detailed fault description, respectively

This helps us to avoid delays in helping you.

10.1 Product-related messages

In the information field of the **basic screen** plain text error messages are displayed that provide information about certain processes or faults with regard to the products/production. The following list contains the most common error messages of X-Series checkweighers. This list does not contain error messages that occur very rarely and error messages that occur exclusively at special designs.

If you have any questions about an error message not described here but that occurs at your checkweigher, please contact our ServiceLine: +49 (0) 5121 933 160.

Error	Cause
* * *	If a weight value could not be determined, three asterisks appear in the weight display. They also indicate to the user that there is an error message (plain text) in the info box at the bottom of the basic screen .
Insufficient product spacing	The products are too close to each other.
Incorrect product length	(option) The weight light barrier has detected a product that is too long. This can mean that a) a product is longer than the weighing conveyor, – or – b) in weighing systems with optional product length tests, the measured product length exceeds the maximum length entered by a user into the package data. Products that are too long can be two subsequent products with no gap in between. Another possible cause is that the wrong products are in the weighing system.

Error	Cause
Open flap detected	The error recognition function "Recognition of open flaps" (option) has recognized a package that is incompletely closed. The corresponding product is sorted out by the assigned sorting device.
Askew package detected	The error recognition function "Askew package recognition" (option) has recognized a package lying askew to the conveyor. The corresponding product is sorted out by the assigned sorting device.
Countercheck: reject failure	The sorting countercheck (Reject Countercheck, option) has recognized a product that should actually have been rejected. This monitoring function has then triggered the error message above. Depending on the design of this function a belt stop (stopping of the conveyors) is additionally triggered or the respective product was after all sorted out by a special rejecter specially provided for the sorting countercheck. The preceding failed ejection attempt can have several causes: The ejecter that failed is defective or has an unfavorable position, or an incorrect offset was entered for the corresponding ejecter during the setup so that it reacts at an incorrect moment.
Countercheck: "GOOD" product missing	The sorting countercheck (Reject Countercheck, option) has determined that a "good" product did not reach the outlet of the checkweigher. This monitoring function has then triggered the error message above. The product may have been ejected incorrectly or removed manually.
Metal Detection	A signal is present at the metal detector input (option) of the checkweigher. Depending on the operating mode of the (optional) metal detector, a "Metal contamination of the product" or – in inverse mode of the detector – a "missing metal part" was recognized. Depending on the setting of the checkweigher the corresponding product is sorted out or a belt stop, i.e. stopping of the conveyors, is triggered.
Metal monitoring: Item missing	(option) One product too little is located on the checkweigher. → Correct the product quantity
Metal monitoring: Too many items	(option) One product too much is located on the checkweigher. The package cannot be read. → Correct the product quantity

Error	Cause
Successive errors	The "Successive errors detection" function (option) has issued this error message and triggered a pre-defined checkweigher reaction (activation of a special contact or conveyors stop) because the pre-set number of successive bad products has been reached. In the Function Allocations screen you can define how many products of a specific quantity have to be recognized as faulty (e.g. 5 out of 10) for a "Successive errors" function to exist. → Verify and remedy the cause for the series of bad products detected by the checkweigher. Possible causes are subsequent products that are overweight and/or underweight, gaps that are too small or too great between products as well as other faults that lead to products being classified as unacceptable.
Overload	The parameterized weighing range for the weighing unit has been exceeded.
Underload	The parameterized weighing range of the weighing unit has not been reached.

10.2 Messages not related to products

10.2.1 Information

Information does not require any action.

Message	Cause
CAN_Network: Motors are exchanged!	Confirmation after a motor replacement: At least 1 motor was replaced or swapped.
CAN Bus OK!	After deactivation of the emergency-stop button.
CAN Bus: Bus OFF!	After activation of the emergency-stop button.
MotorX Y is offline!	After activation of the emergency-stop button, e.g. Motor1 1 is offline.
MotorX Y is online!	After deactivation of the emergency-stop button, e.g. Motor1 1 is online.
Generic setup mode ON!	Function steps in the function "IPT".
Generic setup mode OFF!	
Sample Input Active: Sample 1 Item	Function steps in the function "Sample Rejecter".
Sample Mode: Item x Rejected	
Sample Mode: Start Sample of x Items	
Sample Mode: End of Sample Interval	
Sample Mode: Canceled, x NOT Rejected	
Emergency-stop pressed	The emergency stop of the checkweigher conveyors was triggered by the emergency-stop button being pressed. When the emergency situation no longer exists, the emergency-stop button can be reset. This is followed by the status message Emergency-stop OK again at the weighing terminal and the conveyors can be restarted.
Emergency run activated	The emergency run was activated by the operator (i.e. the emergency run switch was switched over). The checkweigher operates without a weighing function as a "Conveyor". Product classification and sorting is not carried out by the checkweigher - solely the products transported further. Note: The conveyors must be started with the conveyor-start button (not with the selection field in the basic screen). When the emergency run is switched off, the message Emergency run deactivated is displayed.
Light barrier is not obstructed	The light barrier is not being obstructed by an object.

Message	Cause
Loadcell reconnected	The connection between the weighcell and the control cabinet has been interrupted by removing the weighing terminal and re-established.
Loadcell ready	After power connection and connection to the control cabinet the weighcell is ready to operate.
Rezero successful	Manual zero setting at large weight displays was carried out successfully with the Rezero button on the basic screen at an empty weighing conveyor / weighing platform.
Clear conveyors function	The "Clear conveyors function" message signals that the Clear conveyors function (option) is active after a motor stop in order to clear away lying products.
Pre-Selection	The "Pre-Selection" message signals that the Pre-Selection (option) is active. Pre-Selection is configured in the factory or by a Customer Service technician. Specific products that represent "Errors" are already sorted out before weighing by means of a correspondingly located rejecter.
Multi evaluation: Code OK	The code can be read, the weighing terminal takes on the switchover.
Multi evaluation: Delay on package load	(option) A delay occurs when the package data are loaded for the first time. (System-specific information, as a rule only once.)

10.2.2 Warnings

Warnings require an intervention by the operator. Usually a simple operating or setting error is the cause.

Message	Cause
Config error in function 'xyz'	Setting error: Rejecter or sensor distance in function "xyz" is incorrect.
Set tare value failed! (T max)	The tare weight lies above the permitted range. → Use a correct value.
Set tare value failed! (T min)	The tare weight lies below the permitted range. The preload (weighing conveyor) may be too low. → Use a correct value or check whether the weighing conveyor is complete.
Loadcell config error! (X)	Only at multi-lane weighers, X is the error number. Correct sorting is no longer ensured. → Reduce the speed or check the product length.
Feedback: Invalid number (x). Max=y	Feedback: There is a wrong code at the inputs.

Message	Cause
Please check rejecter distance, motor speed,... Item [x] not classified!	A product was not classified. The rejecter distance may be too small or the speed too high. → Adjust the sorting distance and/or speed.
Please check rejecter distance, motor speed,... Item [x] no attribute found by rejecter y!	A product was not classified. The rejecter distance for rejecter y may be too small or the speed too high. → Adjust the sorting distance and/or speed.
Please check delay of rejecter x	The total delay for rejecter x (setup and package data) is too low.
Please check package pulse length of rejecter x	The total pulse length for rejecter x (setup and package data) is too low.
Successive errors: Value out of range! $X > Y$	Successive errors. → Reduce the value for X.
Rejecter (1, 2, 3...): Insufficient distance!	The distance between the weighing conveyor and the sorting device is too small or the belt speed is too high. The corresponding sorting device cannot respond in time. → Increase the distance between the weighing conveyor and the sorting device.
Laser fault	The laser monitoring camera cannot recognize the "lasered" code. → Check the cleanliness of the laser marker and the camera as well as the corresponding product.
Loadcell not connected	The weighcell is not connected to the control cabinet. → Establish a plug connection. The message Loadcell connected is displayed.
Re-zero range fault	The Re-zero attempt failed because, for example, there are too many residues (soiling) on the weighing conveyor or because the weighing conveyor has an other load (for example through an object). → Check, if appropriate, clean.
Multi evaluation: Wrong Code Entry	(option) The scanner cannot read the code. The weighing terminal ignores the changeover and instead retains the last package memory slot. The respective product may be ejected.

10.2.3 Combined error messages / warnings

At some messages to required action is content-specific, depending on whether it is a warning or an error message. These messages always begin with the same keyword. The subsequent message is usually so clear that it is possible to conclude whether it is a error or a warning.

Warnings require an intervention by the operator. Error messages require an intervention by the after-sales service. In case of any doubt please contact our after-sales service.

Note

After the checkweigher has been switched on, the motors are logged in and configured. If an error occurs in the process, a message is displayed in the info line.

Message	Background
Drive Error Mx: Cause (num/num) Example: Drive error M3: Overcurrent (500/8400)	Message in the info line: - the time when the error occurred - Error text (German in case of German operating language, otherwise English) and name of the corresponding motor - first number (Error group 500 – 510, see table below) - second number (Error ID)
Fault from CAN-IO Nx "message"	Error message or warning for a motor-CAN node with specification of the Node ID "Nx" and the cause "message" (English).
Error messages and warnings concerning the weighcell: LoadCell: "message"	Error message or warning of the weighcell. "message" specifies the reason for the message.
Product backup!	The connected external system (e.g. PLC) has sent a "Product backup" message to the checkweigher. Once the product jam is removed or disappears, the status message Backup cleared is displayed.
Light barrier is obstructed	The darkening (optical interruption) of the weight light barrier is lasting too long – meaning that the duration of the light barrier interruption amounts to more than 3 weighing conveyor lengths – or it is interrupted permanently. This can indicate a defect of the light barrier, but also soiling or maladjustment of the light barrier or its reflector. If necessary consult the after-sales service.

Message	Background
Lack of compressed air	The compressed air supply of the pneumatic equipment (e.g. rejecters) is insufficient or interrupted. → Eliminate the cause (check the setting of the pressure gauge at the compressed-air connection of the checkweigher – see X-Series System Manual Part 3, Chapter 5.4 Checking the compressed-air supply). In rare cases (with the compressed air being available correctly) a defect of the pressure-operated switch at the compressed-air connection of the checkweigher can cause this error message. When the compressed-air supply has been restored, the message Air OK is displayed.

Error groups for Drive error Mx: Cause (num/num)

Message	Error	Cause
500	Overcurrent	Motor is overloaded.
501	Undervoltage	Cross-section of the motor cable is too small.
502	Overvoltage	
503	Voltage	Voltage (general)
504	Temperature	Motor is overloaded, room temperature is too high.
505	Device fault hardware	
506	Device error software	
507	Monitoring	CAN Bus error
508	Report error	
509	General error	
510	Other error	

10.2.4 Error messages

Error messages often require an intervention by the after-sales service. Usually a defect is the cause. However, errors can also occur when, for example, cables were not connected properly after the checkweigher has been moved.

Always have the exact text of the message at hand when contacting the after-sales service.

Message	Cause
PutCond for abc failed in task xyz	Internal software problem in the function "xyz".
Loadcell config error! (Command failed)	Error in the communication with the weighcell.
CAN_Network: Found X of Y motors!	Not all the motors were found, e.g. "Found 1 of 3 motors". → Check the connections.
CAN_Network: Some motors are offline: M1, M2,...	Not all the motors were found.
CAN_Network: X motors found for position Y!	The motors are not connected correctly.
CAN_Network: Please check motor wiring and MCB!	
Motor X: Could not set OPERATIONAL MODE!	Motor X cannot be configured. The message can only be displayed after the checkweigher has been switched on.
Motor command "Start" failed for motor Mx	Motor cannot receive any commands or parameters. The cause can be an interrupted connection. → Check the connection.
Motor command "Stop" failed for motor Mx	
Motor command "SetSpeed" failed for motor Mx	
Motor command "Save parameter" failed for motor Mx	
No pulses! Please check configuration and motors/encoder.	
Load Cell Fault	Error of the weighcell or in the weighcell communication. → Please contact the after-sales service.
Loadcell timeout	The response time of the weighcell has been exceeded. → If this occurs repeatedly, consult the after-sales service.
Multi evaluation: No response from IPC	(Option) IPC does not respond. Possibly faults in the system. → If this occurs repeatedly, consult the after-sales service.

10.3 Emergency run

In case of any fault occurring at your METTLER TOLEDO Garvens weighframe, an emergency run function can be activated so that the products continue to be transported on a conveyor while the weighing function does not function. All weighframes feature this emergency run circuit.

Note

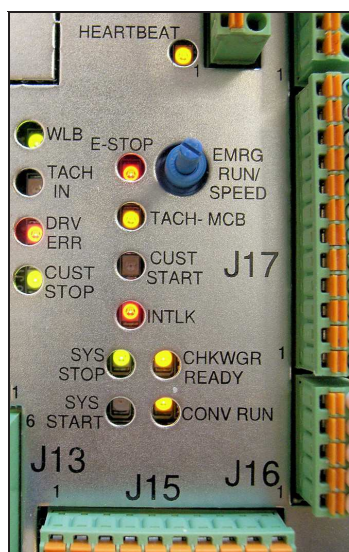
The weighing function of the checkweigher and all other functions normally available are deactivated in the case of emergency run; only the conveyors are running in order to transport the items.



The **Emergency run switch** for controlling the speed during the emergency run is located in the control cabinet on the XRTC module.

1. Open the door of the control cabinet.

The XRTC module can be located easily by means of the following figure:



The blue button beside the caption **EMRG RUN/SPEED** at the top right is a speed controller with integrated switch for the emergency run.

2. In the case of a malfunction slightly turn the blue button.

You feel a slight resistance. After overcoming this resistance the controller can be turned continuously.

3. Press the conveyor start button (button "I") on the weighframe.
4. Set the desired speed for the emergency run.

Note

The electronic equipment belonging to the emergency run function can also be designed as a separate unit, if necessary, outside the control cabinet.

11 Technical data

11.1 Weighing terminal

Screen	Bright, high-contrast LCD color display, logical user operation through menu system
Keyboard	Touch screen (no mechanical keys)
Housing/control panel	Stainless steel and plastic
Weighing terminal protection class	Ingress protection against dust and splash water in accordance with IP 65 or IP 69K (depending on version)
Permissible operating temperature	0 to +40 °C
Supply voltage of the weighing terminal at version for separate installation	24 VDC, 0.65 A (max. 1.8 A)



Mains supply See **X-Series System Manual Part 3: Weighframe.**
Data interfaces See **X-Series System Manual Part 7: Interfaces**

11.2 Weighing functions

Main function	Dynamic weighing operation with weight value and weight classification display as well as automatic sorting of the goods to be weighed. It may be equipped with any of the following options: • Data transmission via interface • Reports (statistics) • Saving or printing data • Programs for controlling fill processes • Various special modes of operation (depending on customized version)
Secondary function	Static weighing (displaying of weights)
Rezero (zero balance)	Automatic or manual, depending on configuration

12 Glossary

10,000 Pcs Rule	When this rule is applied, the current hour of production is stopped after 60 minutes or earlier if 10,000 acceptable products are reached before this length of time.
Checkweigher, automatic	A checkweigher of this type weighs the products while they move on a conveyor chain or a belt conveyor over the weigh-cell. Each product is classified in accordance with the previously defined weight zones (typically as overweight, accepted and underweight). Products are sorted or rejected if they do not lie within the weight specifications.
Checkweigher, continuous	A checkweigher of this type weighs the products while they move on a conveyor chain or a belt conveyor over the weigh-cell.
Checkweigher, intermittent	At a checkweigher of this type each product on the weighing conveyor is stopped, weighed and then transported further. Checkweighers of this type weigh more precisely because no vibrations are generated by conveying equipment during the weighing process. However, they have a lower throughput than continuous checkweighers.
Dynamic weighing	A product is weighed while it is moving on the checkweigher.
Final evaluation	Printing out and subsequent automatic deleting of the production data and statistical results of an article.
Menu	Total of possibilities available for selection.
Package	The package is an abstract designation. The product is the concrete weighing sample that corresponds to the package. For example, you have 500-g packs of coffee as the package. A product is such a pack of coffee that is being weighed.
Product	A concrete product. If, for example, the package is 500-g packs of coffee, a product is an individual pack.
Rejecter	When signaled, this device removes unaccepted products from the production line.
Rezero	Automatically corrects product deposits on the weighcell or gradual changes in weighing operation when components have aged.
Static weighing	A product is weighed by being placed on the checkweigher.
Tare weight	The weight of the pack without content (for example, an empty carton).
Target throughput	Number of products that should be weighed per minute. The checkweigher uses this information to calculate the belt speed necessary to achieve the target throughput. The belt speed is regulated automatically as soon as the screen has been stored.
Target weight	The target weight or desired weight of the product.

Tolerance limits TU1 and TU2	A value that the weighing terminal calculates according to the regulations for pre-fabricated packaging. If production is not carried out in accordance with the pre-packaged goods legislation – meaning that "FREE" was selected as the tolerance system – these values can be modified freely. If "EC-" is used as the tolerance system, this value can only be changed towards the target weight. The value of both tolerance limits appears on the statistical printouts and displays.	
Tolerance system	Statutory regulations on which the weighing of this article is based. The following tolerance systems can be selected:	
	EC-	This system complies with EU production directives. If the "TU1 Percentage" and "TU2" limits are violated, the product in question is rejected. Note If "EC-" is set as the tolerance system, rejecters need to be assigned to the zones "TU1" and "TU2". The rejecter number may not be set to zero.
	FREE	If "FREE" is selected, violations of the "TU1 Percentage" and "TU2" limits do not necessarily cause the product in question to be rejected. It is possible in this case to select the rejecter number "NO" (= no rejecter).
	US	If "US" is selected, the product weights are only checked to see whether they lie within the tolerance range that can be entered in the statistics entry screen – and the mean value displayed in the production data screens is only calculated from weights lying within this range. If "US" is selected, weight sorting does not take place, meaning that products are not rejected by the statistics program. See X-Series System Manual Part 6: Options.
	Australian	Observes the Australian legislation.
Total weight	This value displays the total of all the weights in all the weight classes.	
Weight zone	The weight range between the upper and lower tolerance limits.	

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X-Series System Manual Part 5: Information for administrators

Version check:

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1 Access code conventions

Administrators and other users with corresponding authorizations can specify or change the conventions for passwords:

- Minimum length of the password for a user profile
- Failed logins
- Period for the automatic logoff
- Period after whose expiry the password has to be changed
- Permission for changing the password

Every convention can be activated separately for each user profile.

Example If for example the password minimum length is activated for the "Supervisor" user profile, the password of every user with this user profile has to fulfill the specified minimum length. If on the other hand the function for the "Supervisor" user profile is deactivated, the length of the password is irrelevant for users with this user profile.

All five conventions are set and activated in the **Edit profiles** screen :

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Setup – Users – Edit Profiles**.

The following screen is displayed:



The status field next to the respective convention shows the activation states:

	Convention is activated, parameter can be edited
	Convention is activated, but not selected
	Activation state is changed but not yet accepted
	Convention is not activated

1.1 Automatic logoff

This convention prevents unauthorized use for the case that a user has forgotten to log off.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Setup – Users – Edit Profiles**.
3. Activate the convention **Auto Logoff**.
4. Enter the number of minutes after whose expiry a user is logged off automatically.

When this convention is activated, the residual time for usage is set to the duration specified for the user profile after a successful login and is reduced in a seconds cycle. The remaining time is symbolized by a green progress bar in the status section of the basic screen:



During the last 30 seconds the number of remaining seconds is displayed:



Note

Every touching of the touch screen (navigation, entry, selection) resets the residual time back to the value set in the user profile.

After the residual time has expired the system logs the user off automatically and returns to the **monitoring mode**:



Note

The period can be set relatively high for users with the User profile, while shorter periods should rather be selected for profiles with wide-reaching authorizations such as the "Supervisor" or "Operations manager".

1.2 Failed logins

This convention ensures that users without a valid password cannot obtain access to the system through trial and error.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Setup – Users – Edit Profiles**.
3. Activate the convention **Failed Logins**.
4. Enter the number of tolerated attempts before a user is blocked.

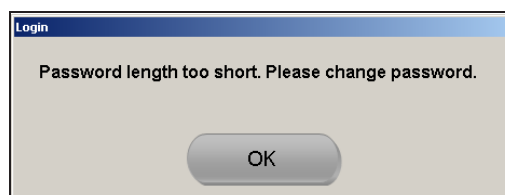
For each user profile a number of attempts can be specified which the user has in order to log into the system. When the convention is active and the specified number of attempts is exceeded, the user is disabled and can only be enabled again by an Administrator or a user with corresponding authorizations.

1.3 Minimum length for passwords

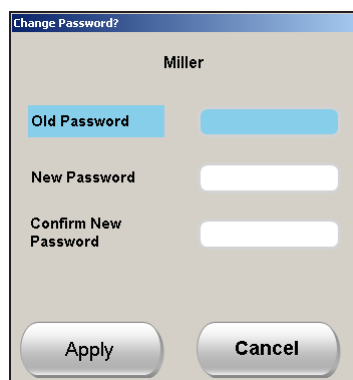
A minimum number of characters can be specified in the system for passwords of a specific user profile in order to ensure that passwords are not empty (without input) or too short.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Setup – Users – Edit Profiles**.
3. Activate the convention **Min Password**.
4. Enter the minimum number of characters that a password must have.

When this convention is active, the system checks during the login with the old password whether the password has the minimum length specified for the user profile. If this is not the case, the following message is displayed:

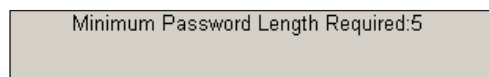


After confirmation of this message with **OK** the system changes to the dialog for changing passwords:



The user has to consecutively enter the old password, the new password and once more the new password for confirmation.

If the password is too short, an error message is displayed that specifies the required number of characters:



Note

If the number of characters for the password of a user profile is increased, the allocated users have to change their passwords.

1.4 Password Expiration

This convention ensures that passwords lose their validity after a specified period and have to be changed.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Setup – Users – Edit Profiles**.
3. Activate the convention **Password Expiration**.
4. Enter the number of days after which the password loses its validity.

When this convention is activated, the date of the first successful login with a new password is saved. This date is used as the reference date for the period until the password expires.

If the remaining period amounts to less than ten days, a corresponding message is displayed in the login dialog:



The image shows a 'Login' dialog box with a blue header. It contains a 'Name' field with a dropdown menu showing 'Miller', a 'Password' field with masked characters '*****', and a 'Password Expiration' field showing '7/14/2011 -> 61 Days'. Below these fields are three buttons: 'OK', 'Cancel', and 'Show Options'.

The user has to change his password within the displayed period, five days in the example.

If the password is not changed within the specified period, the user is disabled during the next attempt to log in after this period has expired and can only be enabled again by an Administrator or a user with corresponding authorizations.

2 Touch screen calibration

The touch screen has to be recalibrated after the following components have been replaced:

- IPC module
- Display unit
- Compact flash card (CF card)

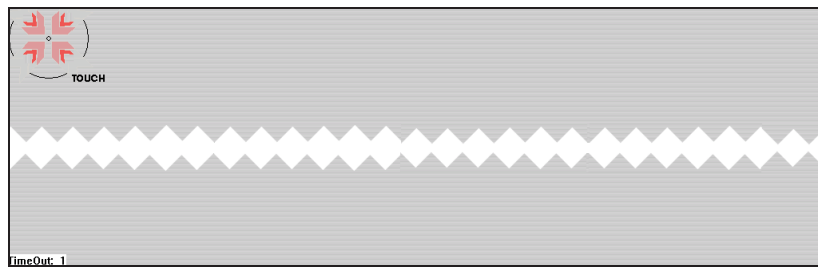
These instructions show a touch screen calibration using a checkweigher with a 15" touch screen as an example.

Aids

- External USB or PS2 keyboard
- Stylus with soft tip (recommended)

1. Connect the external keyboard.
2. If the checkweigher is in a different screen, touch  to change to the **basic screen**.
3. On the external keyboard press and keep pressed the **Alt** key as long as you then enter the following four characters: **T C A L**.

The following screen is displayed:



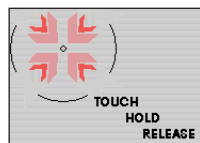
Note

Calibration has to be begun within ten seconds (counter at the bottom left). If the time expires beforehand, restart with Step three.

4. Tap with the stylus in the center of the pulsing circle symbol and hold it there.

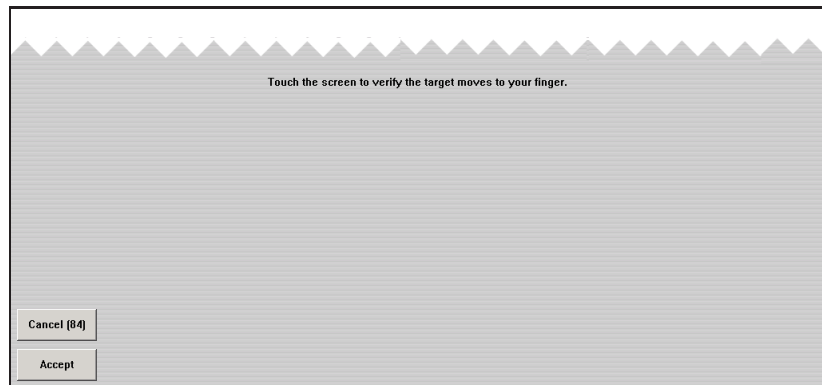
The text **TOUCH** is then replaced by **HOLD**.

After the calibration value has been determined for this point, **RELEASE** is displayed.



5. Remove the stylus from this point.
6. Repeat the procedure in the other three corners of the screen.

After you have completed this procedure in all four corners of the screen, two command buttons are displayed at the bottom left and a central information at the top.



7. Test whether calibration of the touch screen was successful by touching positions freely on the screen.

Note

You have 100 seconds time for the test. However, you can cancel the calibration at any time beforehand by using **Cancel [84]** or confirm the success with **Accept**.

A slight deviation is acceptable as long as it occurs to the same degree everywhere.

Troubleshooting

- If a keyboard plugged in during operation is not recognized automatically (no reaction to entries), restart the checkweigher with the keyboard plugged in.
- If the calibration screen does not open after **Alt + T C A L** has been entered, press the **Esc** key once and try again.

3 Changing the IP address

If you want to change the IP address of the checkweigher, please contact the ServiceLine.

If necessary, the corresponding instructions can be made available.

4 Carrying out an approval test simulation (only for certified checkweighers)

With the approval test simulation you can check whether the limits relevant for approval are still observed. If the calibration value determined differs from the calibration value of the first approval or of the last approval, renewed approval has to be carried out.

Note

This screen is only available for users with a corresponding authorization.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Production Data – Approval Test**.

The following screen is displayed:



3. Make the number of required test packs available.
4. Touch .

After the test packs have passed through the result of the approval test simulation is displayed.

5. If necessary, have renewed approval carried out.

5 Display of the limits for the MID conformity assessment (only for certified checkweighers)

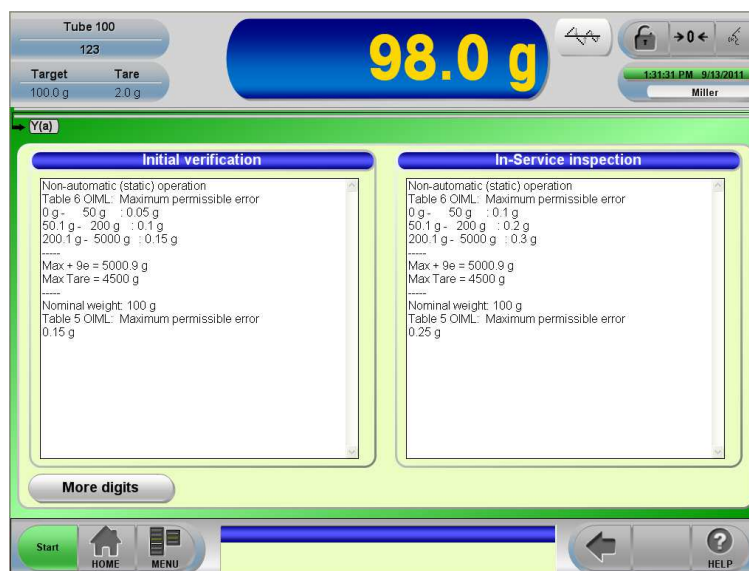
In this screen the values that were found during the initial verification for the checkweigher in the declaration of conformity in accordance with 2004/22/EC are compared with those values that were calculated in the course of an inspection.

Note

This screen is only available for users with a corresponding authorization.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Production Data – MID OIML Info**.

The following screen is displayed:



X-Series System Manual Part 6: Options

METTLER TOLEDO

A graphic element consisting of a series of parallel green lines forming a triangular shape, pointing towards the bottom right, located behind the Mettler Toledo text.

Version check:

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1 Overview of the options

The weighframe can be combined with many different special component versions that are controlled mechanically or via software. This part of the system manual describes a large part of the options for checkweighers of the X-Series.

The options can be divided into three groups:

- Mechanical options such as sidegrip belts, weighing conveyor covers, catch bins
- Software options, such as Statistics, Feedback or Gliding Limits that are described in Chapter 3.1 "Display of the active software options"
- Mechanical options that are controlled via software, such as metal detector or digital numeric indicator (SIKO)

Options are only explained in their main features in this system manual. If you require further information about the individual options, please contact the after-sales service of METTLER TOLEDO Garvens.

This manual part describes the options independently of the implementations of a concrete checkweigher. In view of the permanent further development and extensions of the functionalities of checkweighers, there is no entitlement to the completeness of the options nor any guarantee that the option described here is available for a customized checkweigher.

Apart from the settings described here, the corresponding package memory slot at the weighing terminal has to be selected when the checkweigher is changed to a different package.

If a new package is added that has not been created yet in the memory or if the weighing terminal only disposes of one package, the new package has to be created first. For detailed information see **X-Series System Manual Part 4: Weighing terminal**, Chapter 5.2.

2 Mechanical options

The checkweigher can be combined with many different special component versions in the factory. In individual cases mechanical options can be retrofitted by the after-sales service of METTLER TOLEDO Garvens.

Note

Supplementary equipment may only be mounted by the METTLER TOLEDO Garvens after-sales service.



Information about storage

- Store the mechanical options in a dry and clean state in their original packaging until they are installed.
- Keep all electronic parts that are supplied in anti-static pouches in the latter until they are used. This will protect them best.

Information about cleaning



- Clean the mechanical accessories regularly with soft cloths that are moistened with a mild solution of water and a detergent or a common household detergent for glass and plastic.
- After cleaning ensure that
 - all the parts have been cleaned,
 - light barriers and their reflectors are not covered,
 - the product transport functions.

2.1 Sidegrip belts

The sidegrip belts are used for example to guide the products for example from a conveyor of the production line to the infeed conveyor of the weighframe. The sidegrip belts can be adjusted.

Note

The sidegrip belts can be combined optionally with a height adjustment unit.

Adjusting

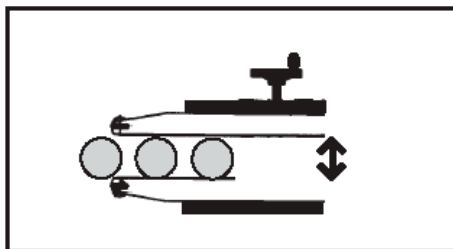


Fig. 1: Sidegrip belts

1. Turn the handwheel and adjust the passing width to the diameter of the product.
2. Adjust the passing width so that there is no slippage and the products do not slip through.
3. Adjust the passing width so that the product is gripped securely and transported further, but is not squeezed or crushed.

Cleaning and maintenance



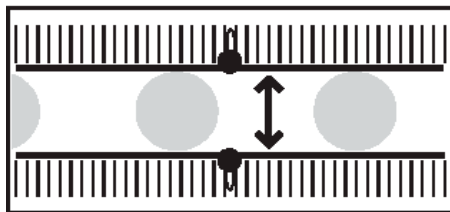
The cleaning work and simple maintenance work described below may be carried out by technical personnel having sufficient expertise.

Cause or recommended check interval	What is to be done?
Weekly	→ Ensure that the top belt and bottom belt are clean and do not show any signs of wear. → If necessary, correct the setting of the top and bottom belt. → In the case of excess wear or clear elongation have the belts replaced by the after-sales service.

2.2 Lateral guide railings

The products are guided optimally with the lateral guide railings. The lateral guide railings can be adjusted.

Adjusting



1. Loosen the knurled screws or clamping levers (optional) of the guide railing.
2. Adjust the guide railing and retighten the knurled screw or clamping lever.

Fig. 2: Lateral guide railings

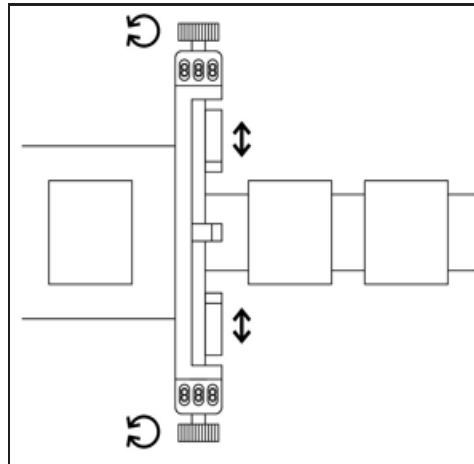
Note

- If there are guide railings on both sides of the conveyor, please ensure that the distance between them (passing width) is not set too narrow.
- Products that bump against the front edge of a guide railings generate vibrations or are deformed and influence the weighing precision negatively.

2.3 Open flap recognition

With this equipment open folded boxes or flaps sticking out can be recognized by measuring the length. The length measurement can be set.

Adjusting



1. Turn the rotary knobs (at the outer ends) and adjust the light barriers laterally to the conveyor.
2. Adjust the light barriers to the length of the correctly closed folded box.

Fig. 3: Length measuring equipment

Note

Flaps standing open extend the length of the folded box and shade at least one of the light barriers.

3. Ensure that the correctly closed folded box does not shade any of the light barriers.

2.4 Transfer unit (top and bottom belt)

The transfer unit consists of a bottom belt and a top belt adjustable in height to ensure exact product transfer, for example from an upstream packaging machine.

Adjusting

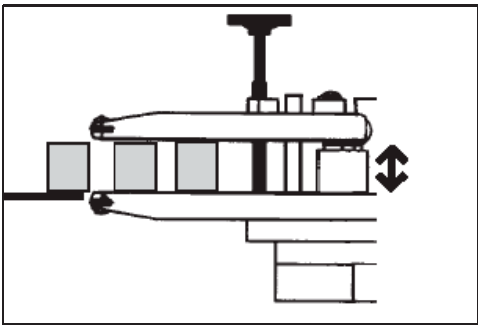


Fig. 4: Top and bottom belt

1. Turn the handwheel and adjust the passing width to the height of the product.
2. Adjust the passing width so that there is no slippage and the products do not slip through.
3. Adjust the passing width so that the product is gripped securely and transported further, but is not squeezed or crushed.

Cleaning and maintenance



The cleaning work and simple maintenance work described below may be carried out by technical personnel having sufficient expertise.

Cause or recommended check interval	What is to be done?
Weekly	→ Ensure that the top belt and bottom belt are clean and do not show any signs of wear. → If necessary, correct the setting of the top and bottom belt. → In the case of excess wear or clear elongation have the belts replaced by the after-sales service.

2.5 Weighing conveyor covers

The weighing conveyor is covered by the weighing conveyor cover.

Note

The weighing conveyor covers can be combined optionally with a safety switch. Weighing conveyor covers may not be removed during running operation.

Installation

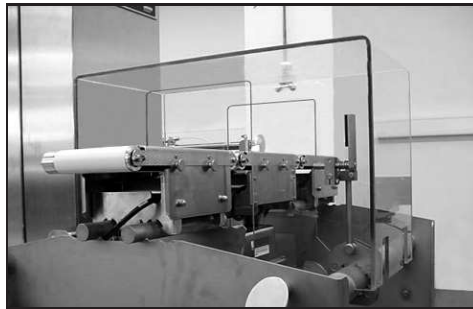


Fig. 5: Weighing conveyor cover – polycarbonate version

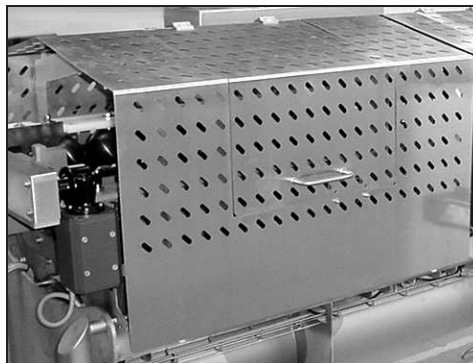


Fig. 6: Weighing conveyor cover – stainless steel version

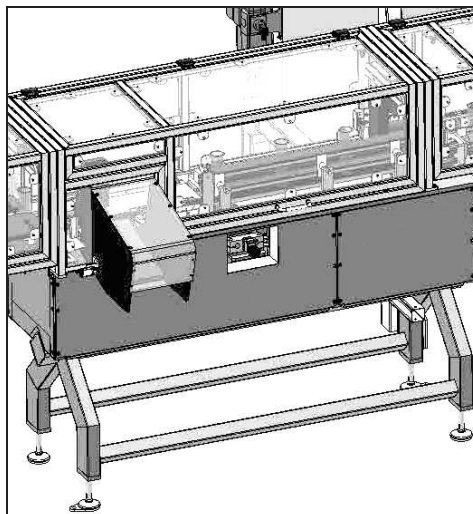


Fig. 7: Complete cover with access flaps

1. Place the weighing conveyor cover over the weighing conveyor.
2. Ensure that the weighing conveyor cover does not contact the weighing conveyor.

3. The complete cover is mounted fixed on the weighframe.

2.6 Catch bin

(only weighframes Sizes 2 and 3)

The catch bin collects ejected products.

Note

The catch bin can be combined optionally with a countercheck and a light barrier for displaying the fill level.

Installation

Traditional design

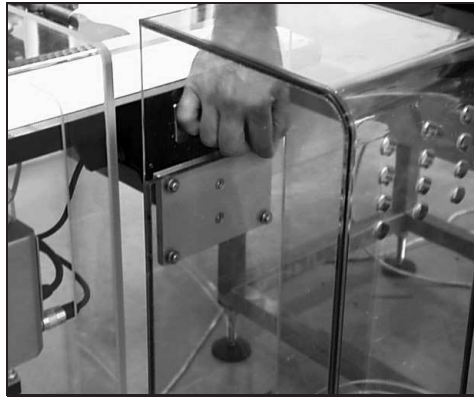


Fig. 8: Mountable catch bin – polycarbonate version

1. Loosen the four M5 or M6 hex head screws (depending on the design) using a size-8 or size-10 wrench and screw them out of the fastening plate. Ensure that the washers are not lost.
2. Have the catch bin held by a second person in front of the fastening plate so that the four holes on the rear panel of the bin exactly covers the four threaded holes in the fastening plate.

Note

Manually tighten the screws well using the wrench, but do not use excessive force since the bin is made of plastic (polycarbonate).

3. Insert the four hex head screws – each with a washer – through the four holes in the rear panel of the bin and screw them handtight.

Horizontal design Note

In addition to the following catch bin there are also mountable versions such as for the traditional design.

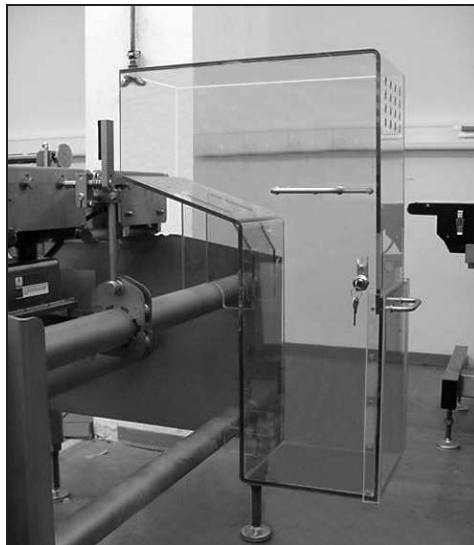


Fig. 9: Catch bin – polycarbonate version, lockable

→ Hang in the catch bin from above at the front round tube of the weigh-frame.

The spacer towards the bottom round tube ensures that the bin sits firmly.



Fig. 10: Catch bin – stainless steel version

→ Hang in the catch bin from above at the front round tube of the weigh-frame.

2.7 Lift gate conveyor

(only weighframes Sizes 2 and 3)

2.7.1 Lift gate conveyor in standard version



Retensioning the transport belt



Fig. 11: Belt tensioning screws

→ Tension the transport belt with the two belt tensioning screws as described in the **X-Series System Manual Part 3: Weighframes**, Chapter 5.5.

Replacing the transport belt



Fig. 12: Circlip

1. Depressurize the pneumatic system.
2. If they exist, loosen the M5 hex head screws of the conveyor protective cover and remove the protective cover.
3. Remove the circlip of the pneumatic cylinder from the retainer bolt of the conveyor body.

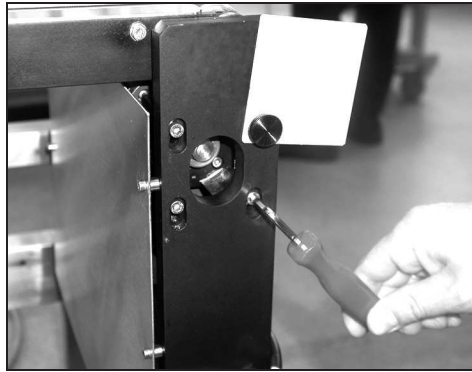


Fig. 13: Motor fixation

4. Loosen the knurled screw on the motor end of the conveyor and open the toothed belt cover.
5. Loosen the three hexagon screws of the motor fixation slightly so that the motor can be lifted slightly to remove tension from the toothed belt.



Fig. 14: Screws of the top part of the conveyor body support

6. Turn out the two M5 hex head screws of the top part of the conveyor body support lying opposite the motor.

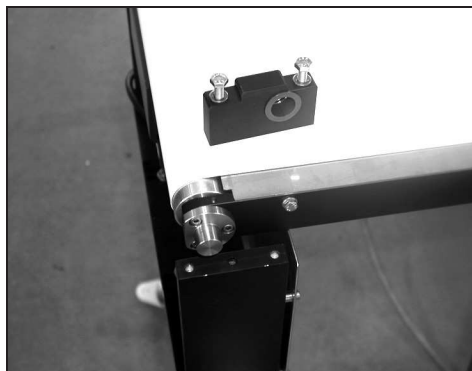


Fig. 15: Top part of the conveyor body support

7. Pull the top part of the conveyor body support from the roller.

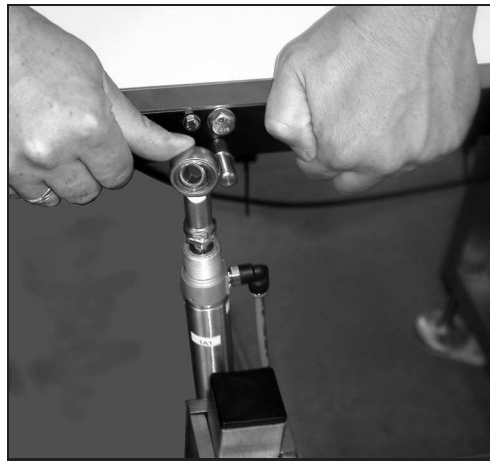


Fig. 16: Pneumatic cylinder

8. Press the conveyor body slightly to the motor side and at the same time pull the pneumatic cylinder forwards (away from the retainer bolt).
9. Swivel the pneumatic cylinder to the side against the direction of movement of the conveyor so that it does not obstruct while the transport belt is being replaced.



Fig. 17: Belt tensioning screws

10. Lift the conveyor body slightly and turn the belt tensioning screws (see fingers) on the right and left counterclockwise **by the same number of rotations** so that the transport belt slackens.



Fig. 18: Pulling off the transport belt

11. Place the conveyor body upright on its drive-end longitudinal side so that the deflection rollers stand vertically.
12. Pull the transport belt carefully out upwards.

CAUTION

Deflection rollers are only positioned loosely in the side parts and can be damaged if they fall out.

→ Ensure that the deflection rollers do not fall out after removing.

13. Remount everything in the reverse order. Ensure that the top part of the conveyor body is flush with the bottom part before screwing on.

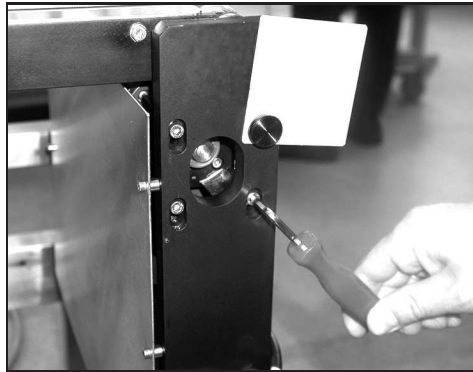


Fig. 19: Motor fixation

Note

For maximum durability of the toothed belt: The toothed belt may not sag in the middle (half way between the pulleys) by more than 2 mm, but must sag by at least 1 mm.

14. Tension the toothed belt by shifting the motor aside away from the drive roller by a few millimeters until the recommended belt tension is attained.

15. Tighten the three hexagon screws of the motor fixation. Check the tension of the toothed belt, as described above.
16. Place the toothed belt cover in the original position and tighten the knurled screw by hand
17. Mount the conveyor protective cover (if present).

2.7.2 Lift gate conveyor with quick tensioning device



Retensioning the transport belt



Fig. 20: Belt tensioning screws

- Tension the transport belt with the two belt tensioning screws as described in the **X-Series System Manual Part 3: Weighframes**, Chapter 5.5.

Replacing the transport belt



Fig. 21: Star grip of the mechanical lock

1. Depressurize the pneumatic system.
2. If they exist, remove the M5 hex head screws of the conveyor protective cover and remove the protective cover.
3. Loosen the star grip of the mechanical lock by a few rotations. It is located approximately in the middle of the conveyor body side part.



Fig. 22: Mechanical lock

4. Slide the mechanical lock (rectangular metal block under the star grip) sideways away from the deflection roller until it stops.
5. Tighten the star grip slightly in order to fasten the mechanical lock in this position.

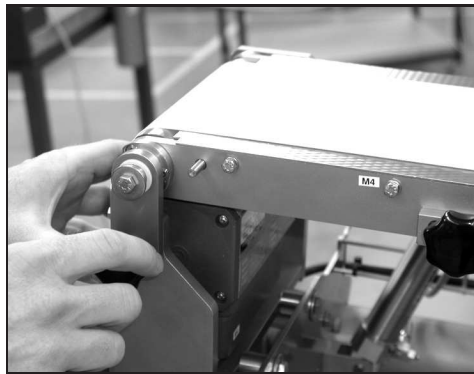


Fig. 23: Star grip of the locking lever

6. Loosen the star grip at the locking lever until it stops.
7. Pull the locking lever slightly forward and swivel by approx. 90° upward.



Fig. 24: Latching in the locking lever

8. Press the locking lever in this position until it latches in.



Fig. 25: Belt quick tensioning device

9. Fold up the belt quick tensioning device.
The transport belt is loose.



Fig. 26: Replacing the transport belt

10. Pull out the old transport belt.
11. Insert the new transport belt and align it centered.

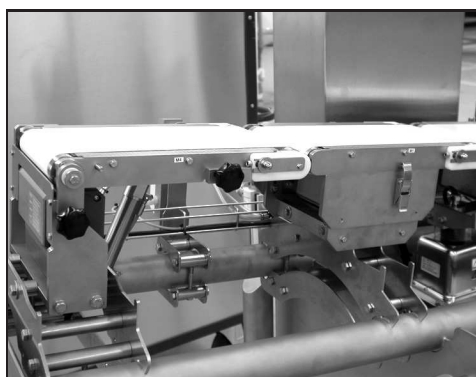


Fig. 27: Tensioning the new transport belt



Fig. 28: Locking lever in the initial position

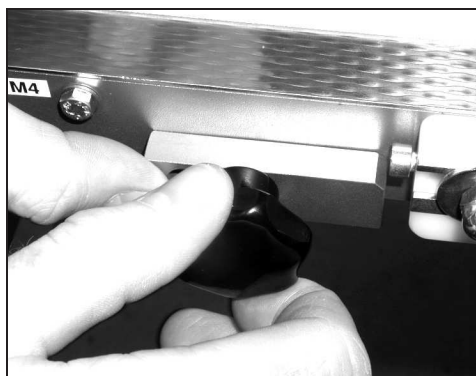


Fig. 29: Fastening the mechanical lock

12. Fold down the belt quick tensioning device to tension the new transport belt.

13. Pull the locking lever slightly forward and swivel downward until it stops.

14. Press the locking lever until it latches in.

15. Turn the star grip at the locking lever tight by hand.

16. Turn loose the star grip of the mechanical lock and slide the mechanical lock toward the deflection roller until it stops.

17. Tighten the star grip of the mechanical lock in order to secure the belt quick tensioning device against folding up.

**Note**

If the checkweigher is equipped with an electronic pressure-operated switch, the compressed-air supply has to be established before the test run. A test run without compressed air is not possible.

1. Establish the compressed-air supply for the test run of the new transport belt.
2. Start the test run and constantly monitor the transport belt during the test run.
3. Correct the run of the transport belt by using the belt tensioning screws in the following cases:
 - The transport belt tension is too low.
 - The transport belt tension is too high.
 - The transport belt does not run straight, but wanders to the side.

Notes about retensioning the transport belt see **X-Series System Manual Part 3: Weighframes**, Chapter 5.5.

4. Mount the conveyor protective cover (if present).

2.8 Cross adjustment

Used to adapt the checkweigher (track center) to the customer product supply at different package widths (for example of an upstream cartoning machine).

Adjusting



The track center setting can be adjusted by means of a handwheel.

- The handwheel is equipped with a numerical position indicator so that the settings can be reproduced.
- The data (settings) can be entered in a format list.

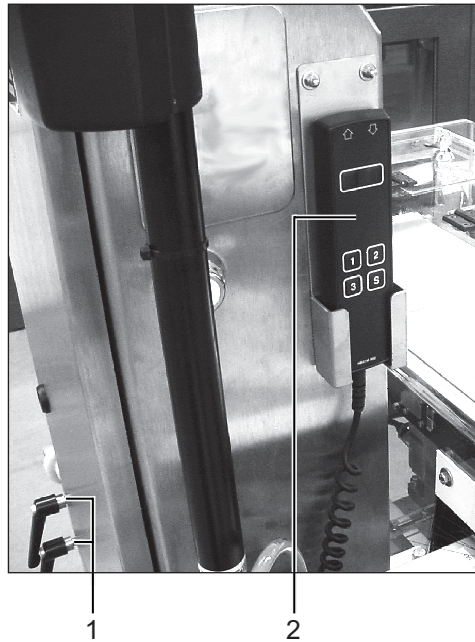
Fig. 30: Handwheel for cross adjustment

2.9 Height adjustment

The height of the conveyor is set by means of the height adjustment.

Adjusting

- ✓ Both motors are operative
- ✓ Guide of the height adjustment is clean



2.10 Infeed timing starwheel

The infeed timing starwheel is used to separate products in order to achieve the required product spacing.

Format change / replacing the infeed timing starwheel

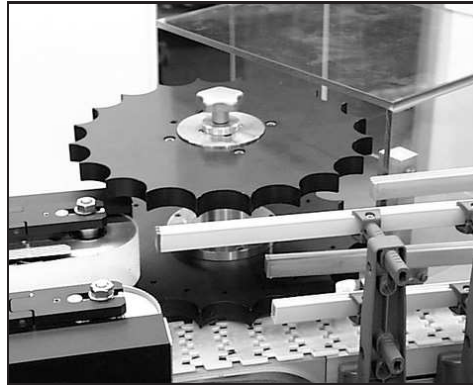


Fig. 32: Removing the cover of the infeed timing starwheel sideways

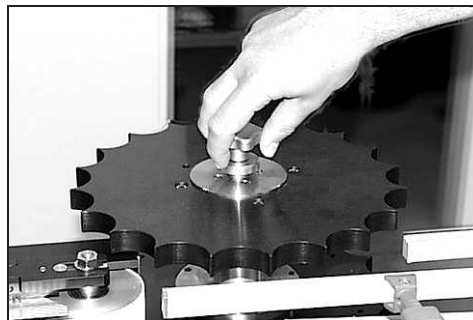


Fig. 33: Turning loose the twist grip

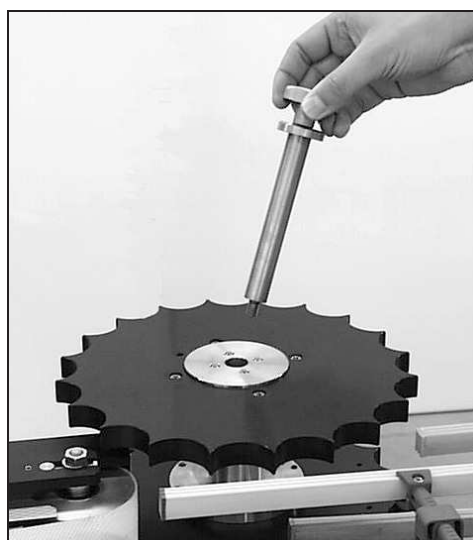


Fig. 34: Pulling out the axle upwards

1. Switch off the main switch.
2. If it exists, remove the cover of the Infeed timing starwheel sideways so that the infeed timing starwheel can be accessed.
3. Turn loose the twist grip (axle) on the top of the infeed timing starwheel (counterclockwise).
4. Completely pull out the axle upwards. If necessary turn it lightly to and fro to do.



Fig. 35: Removing the infeed timing starwheel

5. Remove the infeed timing starwheel upwards.
6. Place the new infeed timing starwheel onto its drive disk so that the drive pins engage exactly into the holes on the bottom of the infeed timing starwheel.

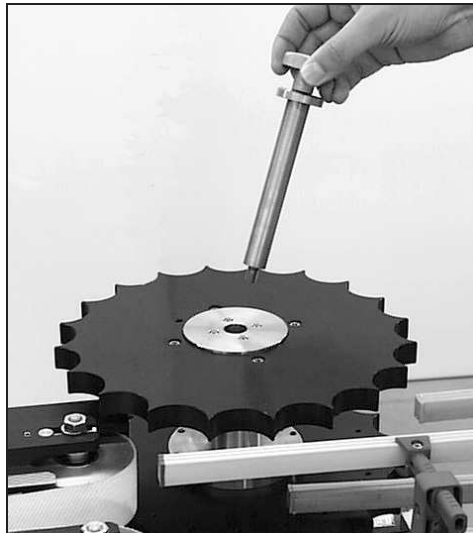


Fig. 36: Screwing the axis tight

7. Put the axle back from the top through the axle hole of the infeed timing starwheel and tighten the twist grip clockwise again.
8. If it exists, swing the cover of the infeed timing starwheel back into its original position so that the infeed timing starwheel is covered.

Note

After a format change it is imperative that the infeed timing starwheel can turn at least one rotation under "no-load" after the checkweigher has been switched back on. This is necessary so that the software of the checkweigher can recognize the format change. Therefore there may be no products in the infeed timing starwheel or in the area in front of it when switched back on. Otherwise product distance errors can occur.

9. Adjust the sidegrip belts (lateral conveyors) to the new package diameter.
10. In as far as necessary, also adjust the lateral guide railings to the new package diameter

2.11 Separating screw

The separating screw is used to separate products in order to achieve the required product spacing.

Format change / replacing the separating screw



Fig. 37: Clamping lever

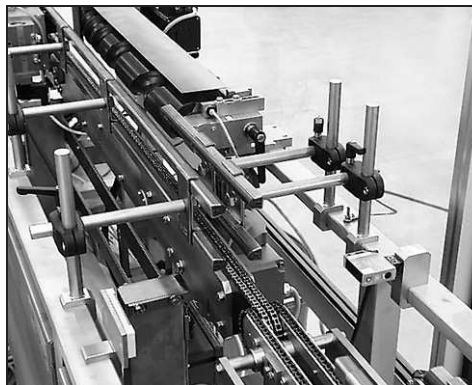


Fig. 38: Guide railings



Fig. 39: Loosening the sheet cover

1. Switch off the main switch.
2. Slightly loosen the knurled thumb screws (or clamping lever) of the guide railing laterally next to the separating screw.
3. Slide the guide railing forwards until over the conveyor chain or remove it completely and lay it aside in order to create space next to the counter bearing of the separating screw.
4. Loosen the M6 hex head screw of the sheet cover of the separating screw using a Size 10 open-end or box wrench.
5. Remove the sheet cover upwards.

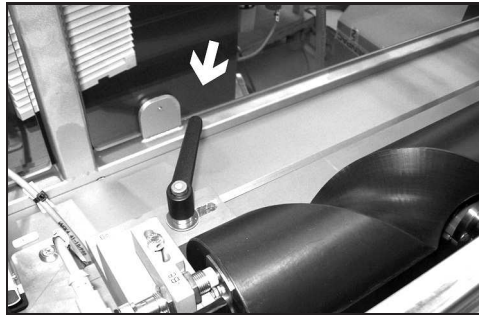


Fig. 40: Loosening the clamping lever of the counter bearing

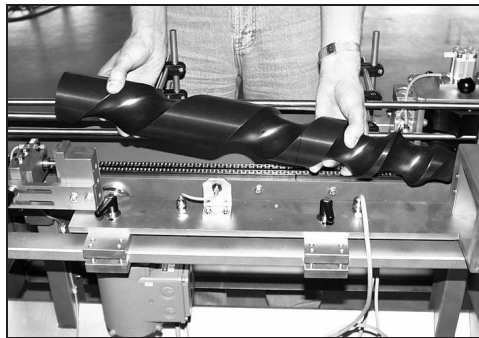


Fig. 41: Sliding on the new separating screw

Note

When changing to a separating screw that has a different format, the diameter section at the rotary star (in the bottle-stop box) has to be checked, i.e. compared with the rotary star.

In many cases the rotary star has to be replaced as well – the specifications of the diameter section on the separating screw and at the rotary star have to be suitable for each other and the size of the products.

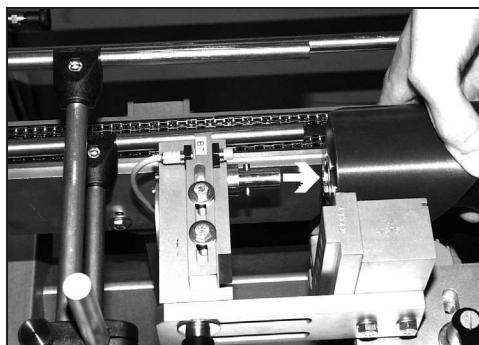


Fig. 42: Sliding the counter bearing back in

Note

If the sheet cover of the separating screw is missing, a proximity switch prevents the function of the entire drive system of the chain checkweigher for safety reasons!

6. Loosen the clamping lever of the counter bearing of the separating screw.
 7. Slide the loosened counter bearing from the screw end in the longitudinal direction.
 8. Pull off the separating screw from its drive shaft (at the opposite end) in the longitudinal direction. Avoid tilting and jamming in the process!
 9. Remove the separating screw.
 10. Slide the new separating screw (with the side having the narrower winding pointing forwards) onto the drive shaft. Avoid tilting and jamming in the process!
 11. Slide the counter bearing into the end of the separating screw.
 12. Tighten the clamping lever of the counter bearing by hand again.
- Applies only for chain checkweighers without protective cover:
13. Put the sheet cover of the separating screw back on and screw tight with the M6 hex head screw (Size 10 wrench).

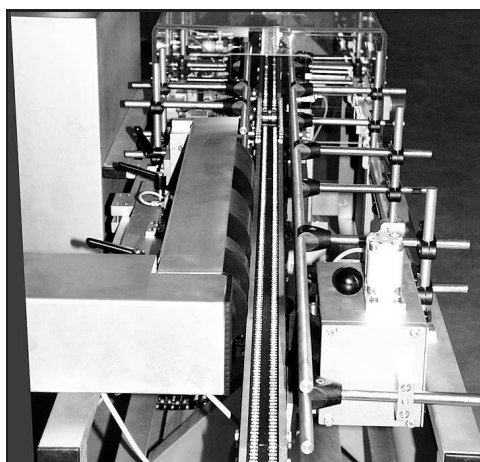


Fig. 43: Inserting the guide railings

Note

The products must be able to exit the separating screw without contact the front edge of a guide railing. They may not be jammed between to guide railings lying opposite each other.

The guide railings should be set so "tight" that the products can move through unimpeded, but without the products tipping sideways.

14. Insert the guide railing next to the separating screw into its retainer or slide it back into its original position.
15. Tighten the knurled thumb screws (or clamping lever) of the guide railing by hand again.
16. Check the setting of all the guide railings and if necessary correct.

2.12 Mobile version

(only weighframes Sizes 2 and 3)

Mobile checkweighers can be used at various locations and be removed from the product line for maintenance and cleaning.

Setting up the checkweigher

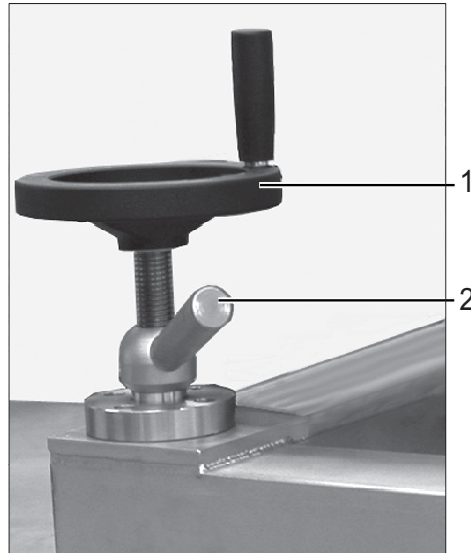


Fig. 44: Setting up the checkweigher

1. At the set-up location of the checkweigher turn down each footscrew using the handwheel (1) until floor contact has been established.
2. Adjust each footscrew further by turning the handwheel so that the conveyor or conveyors of the checkweigher are exactly flush in height with the upstream and downstream conveyors.
3. Secure each footscrew by tightening its respective lock nut (2).

Moving the checkweigher



Fig. 45: Moving the checkweigher

1. Loosen the lock nuts (2) at all the footscrews.
2. Use the handwheel to turn each footscrew upward until the footscrews are positioned several centimeters over the floor and the checkweigher stands on its rollers.
3. Travel the checkweigher to the desired location.
4. Turn down and secure the footscrews.

2.13 Vane sorting device with numeric indicators

The vane sorting device is used to sort products at high speed.

The sorting device consists of a servomotor with mounted vanes in the form of sorting paddles. The servomotor is controlled by the sorting signal of the checkweigher.

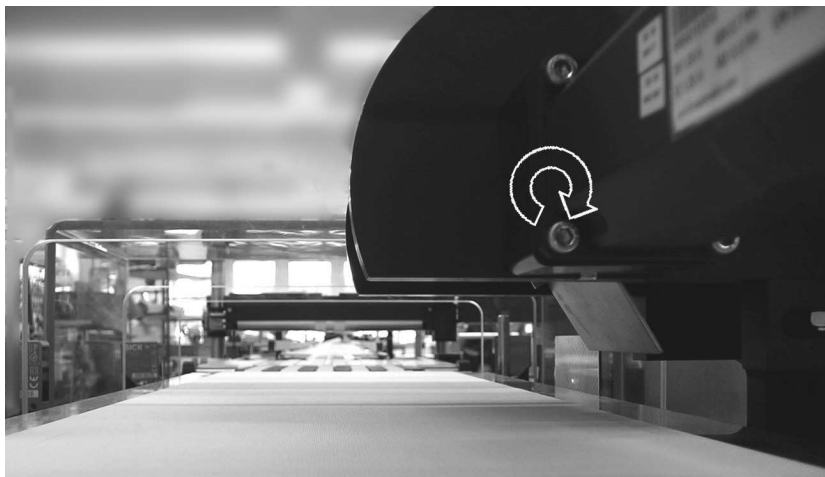


Fig. 46: Side view of the vane sorting device, sorting paddle in the idle position (viewed from the outlet side)



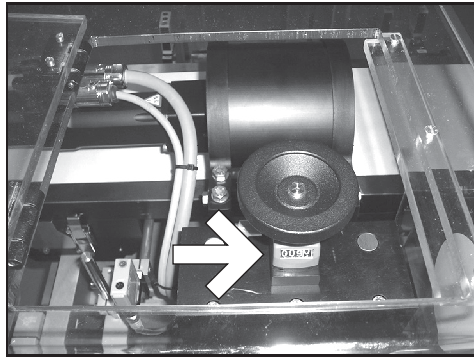


Fig. 47: Handwheel for height adjustment

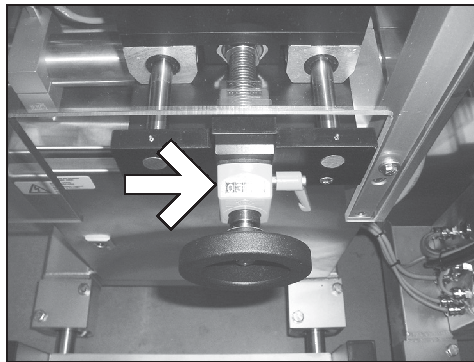


Fig. 48: Handwheel for depth adjustment

The sorting device can be adjusted in its height and depth by means of handwheels in order to achieve trouble-free sorting for different formats.

- Both handwheels are equipped with numerical indicators (arrows, optional) so that the settings can be reproduced.
- The data (settings) can be entered in a format list.

2.14 Attached paper roll printer

The integrated paper roll printer is a thermal printer that may only be operated with suitable thermal paper. This can be ordered from your METTLER TOLEDO Garvens or METTLER TOLEDO representative.

Note

If the print image has lost contrast or the printer has other faults, please contact the after-sales service.

2.14.1 Open the printer cover for printing



Fig. 49: Printer opened partially for printing

1. Pull the printer cover forwards at the handle until the lock unlatches. Open the printer cover wide enough so that the printed strips can emerge unimpaired at the tear-off edge.
2. Tear off the printed paper strip along the tear-off edge and close the printer cover again.

Note

Leave the printer cover in the open position in the case of automatic intermittent printing.

2.14.2 Replacing the print paper roll



Fig. 50: Printer cover completely open, open paper compartment

1. Open the printer cover completely upward.
The printer cover remains at a right angle.
2. Pull the paper compartment latch (1) forward to unlatch it and fold the paper compartment flap (2) upward.



Fig. 51: Open paper roll compartment with paper roll

3. Insert the new paper roll into the empty paper compartment so that the paper strip rolls from below to above at the roll front.
4. Guide the paper strip end downward.



Fig. 52: Closing the paper compartment

5. Press the paper compartment flap down to close the paper compartment.
The paper is threaded in automatically.
6. Close the printer cover and press it until it latches in.
The printer is ready to operate.

Note

Leave the printer cover in the open position in the case if automatic intermittent printing.

2.14.3 Eliminating a paper jam

The paper compartment flap has to be unlatched and opened to remove a paper strip from the printing unit:

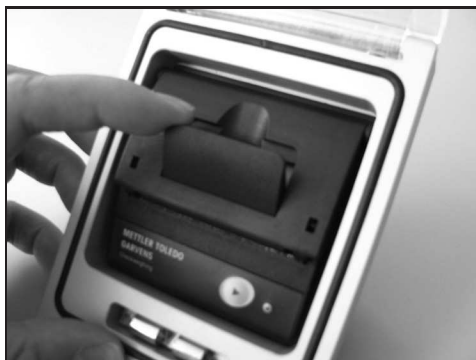


Fig. 53: Eliminating a paper jam

1. Open the printer (see Section 2.14.1)
2. Remove paper rest and the paper roll.
3. Insert a new paper roll (see Section 2.14.2)
4. Press the paper compartment flap closed.
5. Close the printer cover and press it until it latches in.

2.15 Pressure-operated switch

The pressure-operated switch function monitors the air pressure for the sorting devices.

The pressure-operated switch is located at the maintenance unit (filter controller), at the compressed-air connection of the weighframe. It is an electronic device whose switching behavior can be changed by reprogramming.



Fig. 54: Pressure-operated switch with analog display



Fig. 55: Pressure-operated switch with digital display

Setting

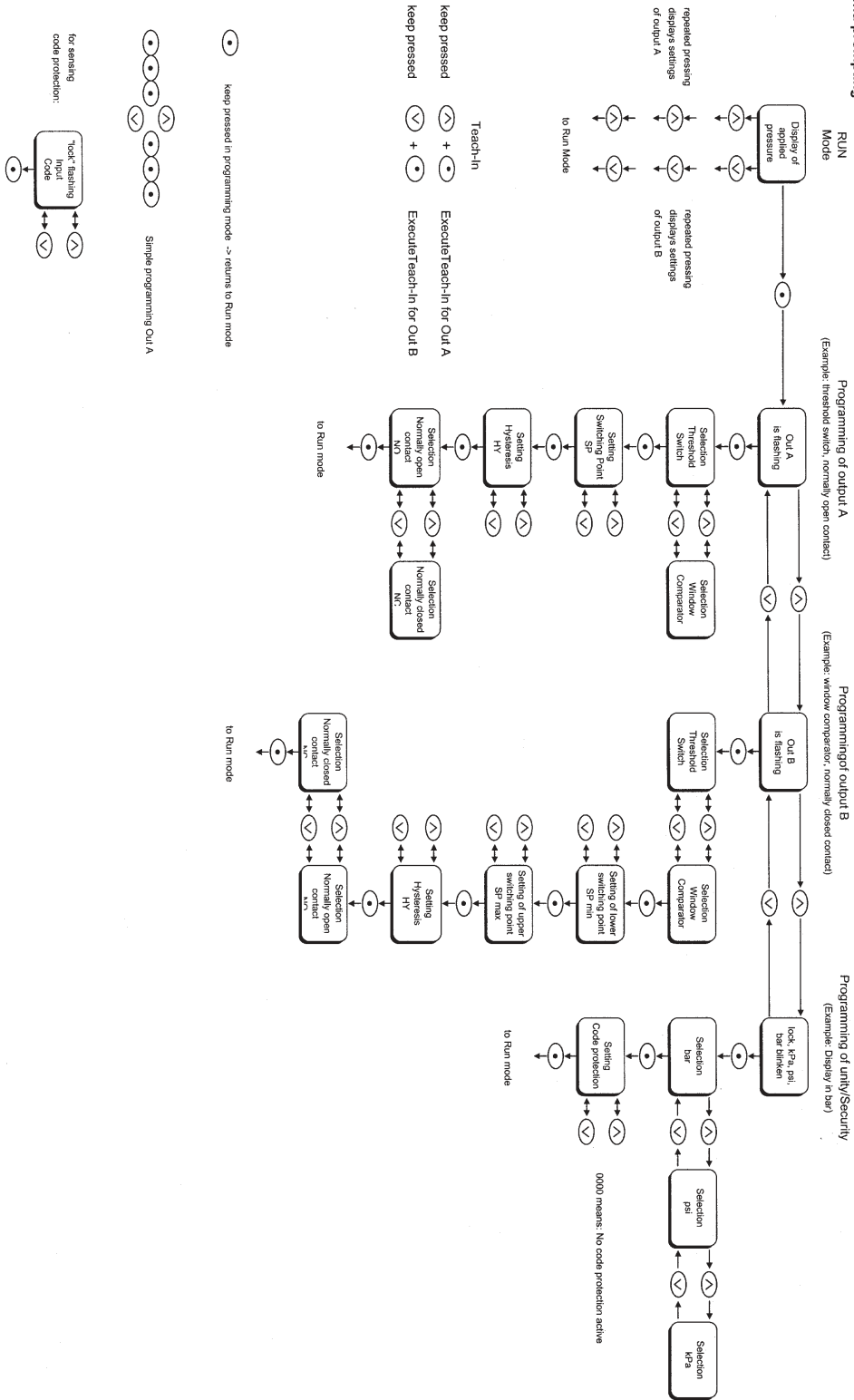
We recommend that the factory setting not be changed. If changing is imperative follow the procedures specified by the manufacturer. These are located in the document bag.

A scheme showing the menu structure of the pressure-operated switch is included to provide you with a better understanding.

FESTO AG & Co.

WFD / 05.07.00

Menu prompting



3 Software options

The functionality is identical to a great extent at the 15" terminal (XS) and the 7" terminal (XE), however not all the options and not all the functions are available for the 7" terminal. If only the screen for the 15" terminal is displayed, this option is not available for the 7" terminal.

Note

Software options can be tried out in four-week test operation ("try and buy") and some options can be retrofitted. For detailed information please contact the after-sales service of METTLER TOLEDO Garvens.

3.1 Display of the active software options

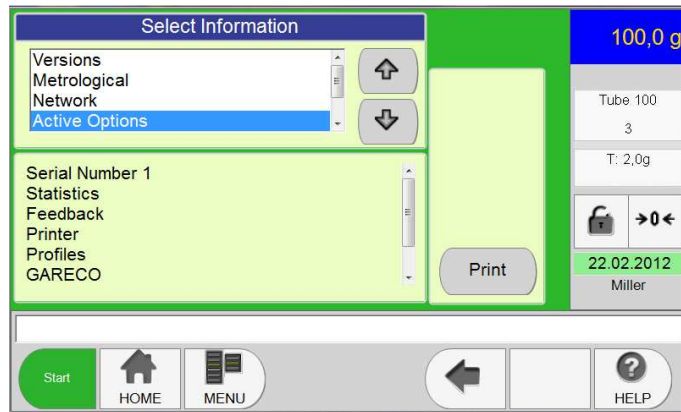
A user with a corresponding authorization can have the installed software options displayed.

1. Touch the menu button  or  in the **basic screen**.
2. Select the menu items **Information – System Information**.
3. In the **Select Information** section select the item **Active Options**.

15" terminal The active software options are displayed in the right-hand field:



7" terminal The active software options are displayed in the bottom field:



3.2 Statistics

This option allows the collection, the analysis, the interpretation and the presentation of current weight data and stored production flows. The following evaluations can be called up:

- **Total Statistics:** Overview of the entire production flow for a package
- **Hour Statistics:** Evaluation of the data for the current production hour
- **Interval Statistics:** Evaluation of the current interval that is not yet complete
- **Batch Statistics:** Evaluation of the production period since entry of the last batch number
- **Records Table / Records Graphics:** Calling up of final evaluations and statistics in the automatic data storage

Prerequisite for calling some of these statistics is the specification of the interval type, batch size and printout modalities for the current package via the Interval Setup menu.

Note

These settings may only be carried out by users having the corresponding authorization, for example Supervisors.

3.2.1 Activating statistics

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Main Package Setup**.

15" terminal



7" terminal

Main Package Setup		98,0 g	
Name	Tube 100 3	Apply	Tube 100 3 T: 2,0g 25.06.2012 Miller
Target	100,0	↑	
Tare	2,0	Edit	
Unit of Measurement	mm ↓	↓	
Target Throughput	100 Stats? ✓	Cancel	
Start HOME MENU		← → ? HELP	

3. Touch the field next to **Statistics?**

☒ is displayed.

4. Touch **Apply** to save the settings.

Statistics activated If the Statistics program is activated here and for example the **Hour Statistics** is preset, the following screen is displayed in the statistics field of the **basic screen**:

Current Hour Mean Value : 198,62 g Accepted : 2189 / 2472 Std.Dev. : 2.11	Statistics Mean Value : 99,22 g Accepted : 105 / 129
15" terminal	7" terminal

Statistics deactivated If the **Statistics** option exists, but the Statistics program is deactivated here, the following information is displayed in the statistics field in the **basic screen**:

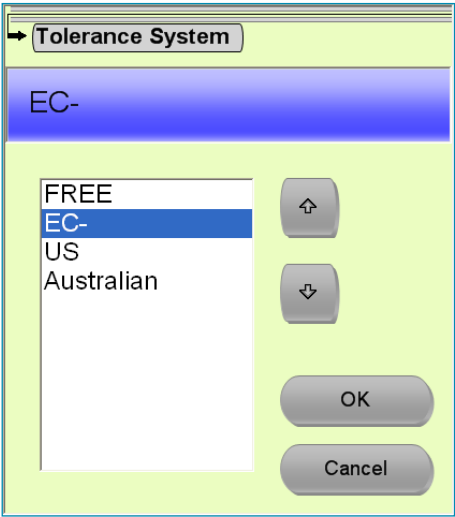
Statistics Statistics Disabled	Statistics Statistics Disabled
15" terminal	7" terminal

Note
When the Statistics program is deactivated, only the limits of the package that are set in the package data apply as the rejection limits.

3.2.2 Selecting the tolerance system

- 1. Touch the menu button  in the **basic screen**.
- 2. Select the menu items **Packages – Active Package – Add. Package Setup**.
- 3. Touch the Tolerance System button.

The following window is displayed:



- 4. Select a tolerance system from the list and confirm with **OK**.
- 5. Touch  to save the settings.

Tolerance system	Statutory regulations on which the weighing of this article is based. The following areas of tolerance can be selected:	
	FREE	If "FREE" is selected, violations of the "TU1 Percentage" and "TU2" limits do not necessarily cause the product in question to be rejected.
	EC-	This system complies with EU production directives. If the "TU1 Percentage" and "TU2" limits are violated, the product in question is rejected. Note If EC- is set as the tolerance system rejectors need to be assigned to the zones TU1 and TU2.
	US	If "US" is selected, the product weights are only checked to see whether they lie within the area of tolerance that can be entered in the statistics entry screen – and the mean value displayed in the production data screens is only calculated from weights lying within this range. If "US" is selected, weight sorting does not take place, meaning that products are not rejected by the statistics program.
	Australian	Observes the Australian legislation.

3.2.3 Statistical Limits

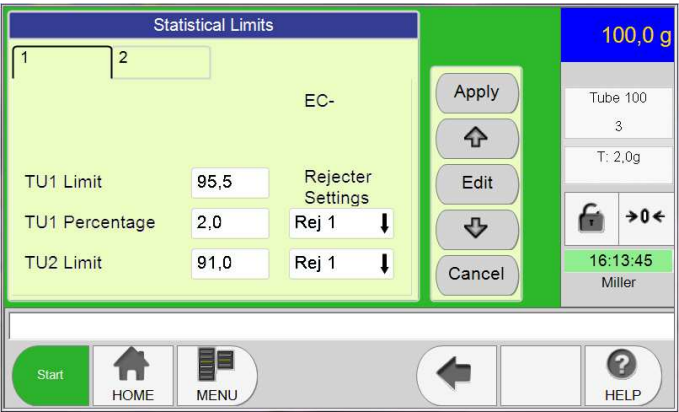
- 1. Touch the menu button  or  in the **basic screen**.
- 2. Select the menu items **Packages – Active Package – Statistical Limits**.

Area of tolerance for "EC-", "FREE", "US" or "Australian" If the tolerance system "EC-", "FREE" or "Australian" is selected in the **Add. Package Setup** screen, the **Statistical Limits** screen has the following content:

15" terminal



7" terminal At the 7" terminal the parameters are distributed across two screens:



In the **Statistical Limits** screen the **Area of Tolerance**, **Statistics Rules** and **Rejecter** are set.

Information about the tolerance limits TU1 and TU2:

- For both limits, a value that the weighing terminal calculates in accordance with the requirements specified in the regulations for pre-fabricated packages is automatically displayed.
- If production is not carried out in accordance with the pre-packaged goods legislation – meaning that "FREE" was selected as the tolerance system – these values can be modified freely.
- If "EC-" is used as the tolerance system, this value can only be changed towards the target weight.
- The value of both tolerance limits appears on the statistical printouts and displays.
- Recalculation is carried out in accordance with the respective setting.

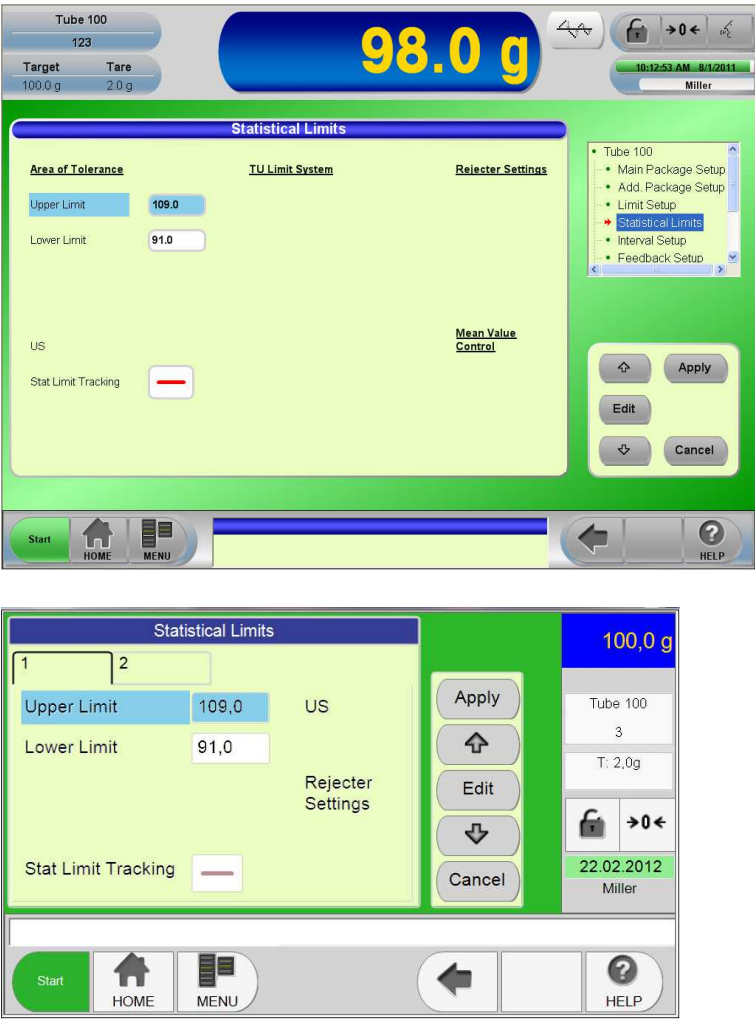
The input fields have the following meaning:

Field	Description
TU1 limit	Germany All products with a weight below this limit are rejected when this production weight is determined based on one of the following conditions: • more than 2 % of the products are below this weight during one hour of production or • more than 2 % of 10,000 accepted products weigh less than the specified limit during less than one hour of production. International As above, depending on local legal regulations, 2 %, 2.5 % or 5 % of the products can be below the TU1 limit. An amount of 2.5 % is allowed in Switzerland, Britain and the Netherlands, for example.

Field	Description
TU1 percentage*	Set the max. TU1 % limit for the production process according to the regulations for pre-fabricated packages. Germany: If production is in accordance with FPVO regulations (German regulations for pre-fabricated packages), a maximum of 2 % of the products may lie between the TU1 and TU2 weight limits. Therefore, "2.0 %" has to be entered here. International: Enter "2" or "2.5" or "5" % according to your local regulations. When you enter "0" %, all the products below the lower TU1 limit are rejected. When you enter "100" %, the control function does not reject any products.
TU2 limit	TU2 is an absolute rejection limit. Products whose weights lie below this tolerance limit are rejected.
10,000 Pcs Rule*	When this rule is applied, the current hour of production is stopped after 60 minutes or earlier if 10,000 acceptable products are reached before this length of time.
Auto Printout	Here you can select whether the results are to be printed out automatically or not after the end of a production hour (only if printer active/exists).
Rejecter Settings	Select a rejecter for the tolerance limits TU1 and TU2. Rejecting can only be deactivated by using the setting "NO" when the "FREE" statistics system is used.
Mean Value Control, top field*	Basis for the calculation of the mean value control: Off Deactivate the mean value control (basic setting) Hour Statistics Mean value control based on the Hour Statistics Total Statistics Mean value control based on the Total Statistics Note Constant controlling is carried out whether the mean value of the products remains above the target weight of the package • in the respective "current hour of production" or • since production begin (or since the last final evaluation respectively). The mean value of the product weights thus always lies higher than the target weight.
Mean Value Control, bottom field*	Selection of a rejecter from the list field: NO No rejecter is assigned Rej. 1, Rej. 2 ... Rejecter is assigned

* Not for the "Australian" tolerance system

Area of tolerance "US" If the "US" area of tolerance is selected in the **Add. Package Setup** screen, the **Statistical Limits** screen has the following content:



The second screen of the 7" terminal does not contain any parameters.

The **Area of Tolerance** is entered in the **Statistical Limits** screen.

The input fields have the following meaning:

Field	Description
Upper Limit	Enter the upper limit of the area of tolerance.
Lower Limit	Enter the lower limit of the area of tolerance.
Stat Limit Tracking	Observes the American legislation.

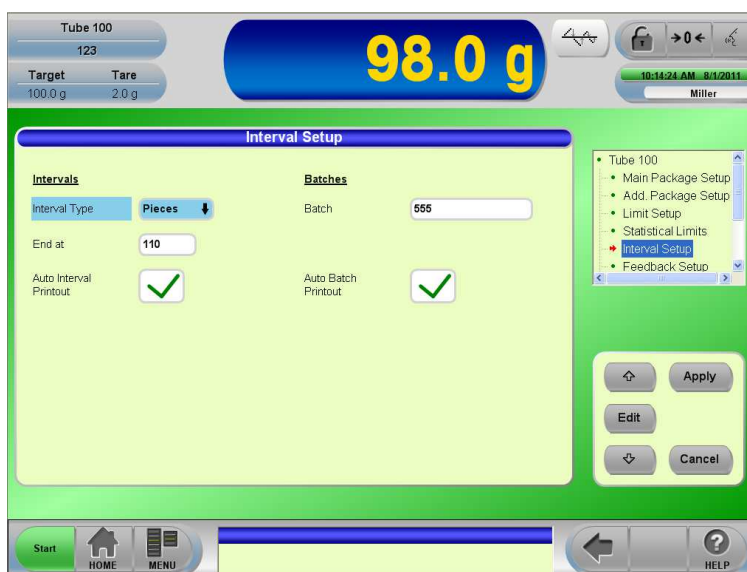
3.2.4 Interval Setup

An interval evaluation can be carried out either after a specified time or after a specified number of units.

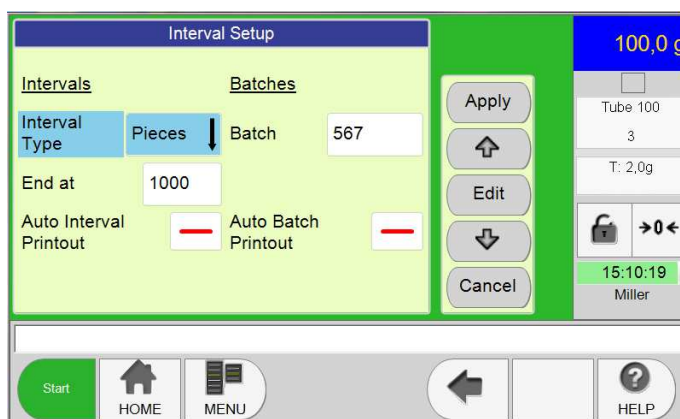
After the **Statistics** option has been activated, the **Interval Setup** screen is displayed in the master data of the current package and is selected by using the following menu path:

1. Touch the menu button  or  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Interval Setup**.

15" terminal The following screen is displayed:



7" terminal The following screen is displayed:



In the **Interval Setup** screen the interval type is specified and/or the batch number is entered, see Chapter 3.4 "Changing the batch number".

The input fields have the following meaning:

Field	Description
Interval Type	Specify when a statistics interval result is to be created: Pieces After a specific number of products, i.e. weighings Time After a specific time
End at	Define the interval in pieces or minutes depending on the Interval Type .
Auto Interval Printout	Specify whether the results are to be printed out automatically or not when an interval end is reached.
Batch	Enter the batch number, see Chapter 3.4 "Changing the batch number". The batch number is included in the statistics results screens and – if a printer is connected – on the statistics printouts (see Chapter "Batch change in weighing operation").
Auto Batch Printout	Specify whether the batch statistics results are to be printed out automatically or not when a batch is changed (entry of a new batch number).

Batch change in weighing operation

If the batch number is changed during weighing operation, the current batch statistics are completed automatically, see Chapter 3.4 "Changing the batch number".

The entry and saving of a new batch number results in the storage of the previous statistical records in the memory and to deleting of the values of the current batch statistics. The batch statistics recording restarts with the new batch number.

15" terminal



7" terminal

1. Touch the **Batch** input field.
The screen keyboard is displayed.
2. Enter the new batch number and confirm with **OK**.
3. Save with **Apply**.

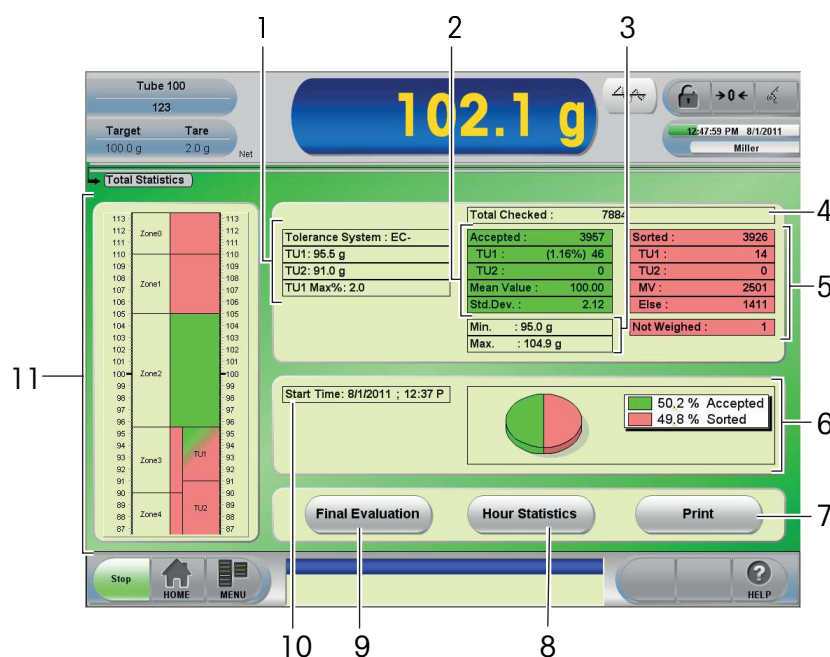
The batch number entered for the package is stored. At the same time a batch statistics of the previous batch is stored.

3.2.5 Total Statistics

These statistics provide an overview of the entire production flow for a package.

- 15" terminal**
1. In the **basic screen** touch the menu button .
 2. Select the menu items **Production Data – Statistics – Total Statistics**.

The following screen is displayed:



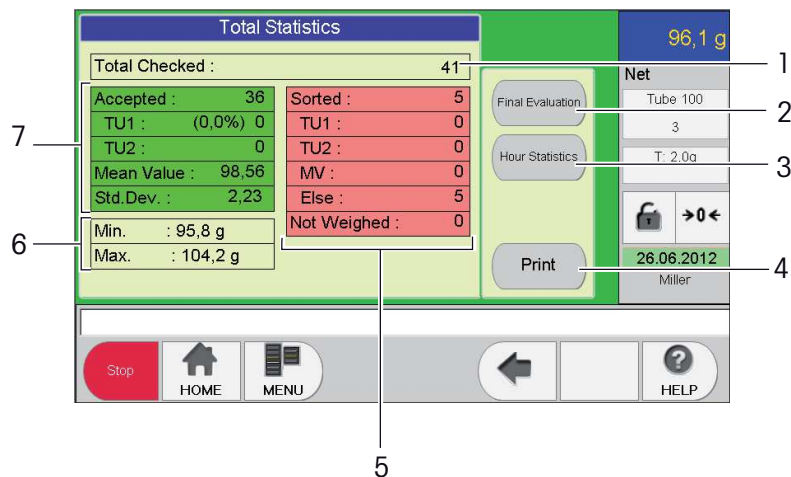
Item	Explanation
1*	Tolerance parameters from package data
2*	Fields with the values of all accepted products
3*	Minimum and maximum weight value of all the accepted products
4	Checked products: Number of all the weighings, in other words, the total of the accepted and rejected products
5*	Fields with the values of all the rejected products
6	Pie chart and percentage distribution of the accepted and rejected products
7	Print recorded values immediately, but do not delete them
8	Call up the statistics of the current hour of production
9	Final evaluation and subsequent automatic deleting of the recorded information about the production of this package. The final evaluation is stored in the statistics storage. In parallel it is printed out
10	Start time: The exact start time for statistical recording is the first weighed and accepted product in the production period
11	Distribution of the rejected and accepted products in connection with the weight zones and the tolerance limits

*This representation varies depending on the set tolerance system.

7" terminal 3. In the **basic screen** touch the menu button .

4. Select the menu items **Production Data – Statistics – Total Statistics**.

The following screen is displayed:



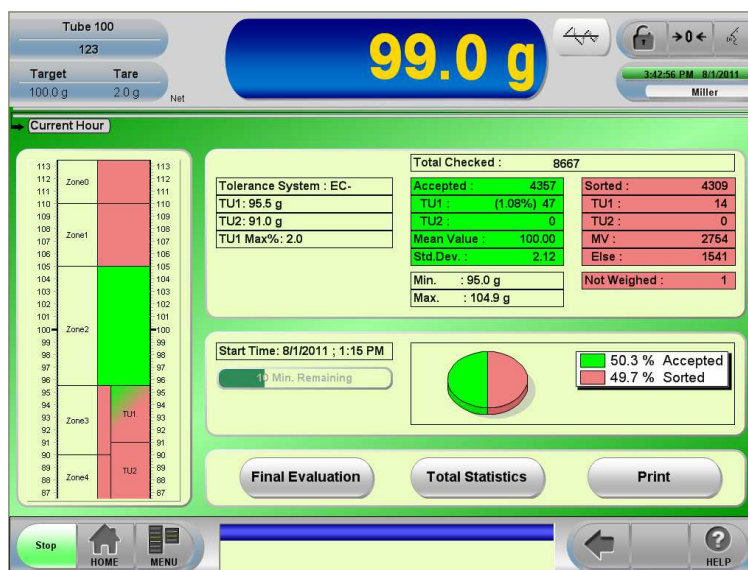
Item	Explanation
1	Checked products: Number of all the weighings, in other words, the total of the accepted and rejected products
2	Final evaluation and subsequent automatic deleting of the recorded information about the production of this package
3	Call up the statistics of the current hour of production
4	Print recorded values but do not delete them
5	Values of all rejected products
6	Minimum and maximum weight value of all the accepted products
7	Fields with the values of all the products not rejected

3.2.6 Hour Statistics

This information refers to the current production hour. The current hour of production is stopped after 60 minutes or earlier if 10,000 accepted products have been weighed before this length of time (applicable only when using the **10,000-piece rule**).

1. Touch the menu button  or  in the **basic screen**.
2. Select the menu items **Production Data – Statistics – Hour Statistics**.

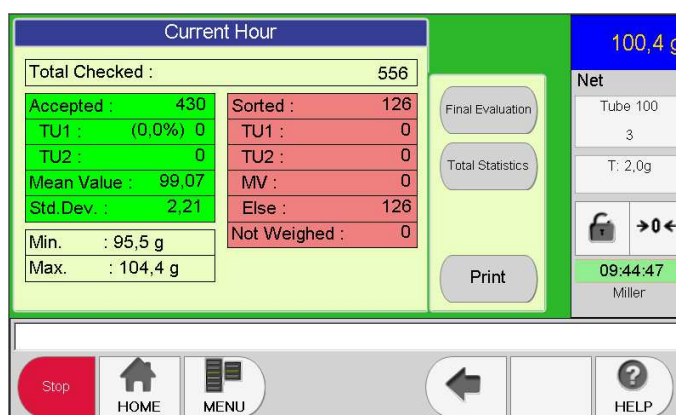
15" terminal The following screen is displayed:



Only 15" terminal:

The remaining time of the current production hour is specified under the **Start Time** section. A bar increasing from left to right symbolizes the time that has already expired.

7" terminal The following screen is displayed:



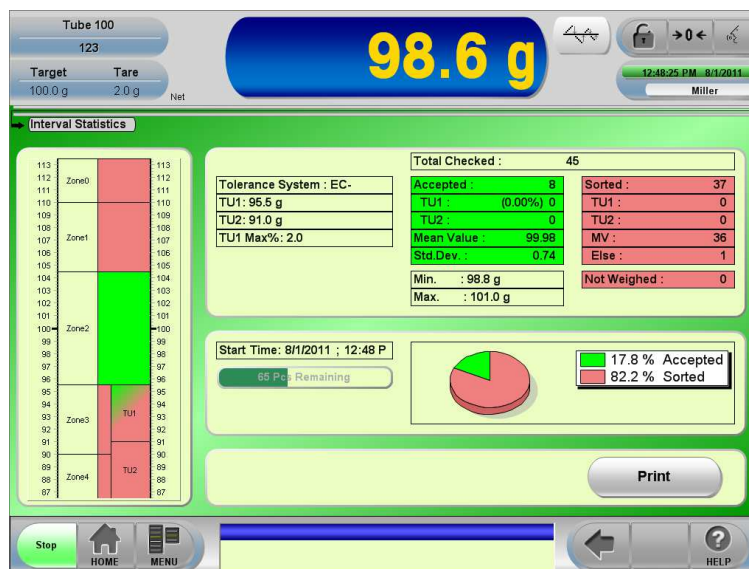
The parameters shown on the screen are the same as the ones for the total statistics (see Chapter 3.2.5 "Total Statistics").

3.2.7 Interval Statistics

This statistics shows the statistical information of the current interval that is not yet completed.

1. Touch the menu button  or  in the **basic screen**.
2. Select the menu items **Production Data – Statistics – Interval Statistics**.

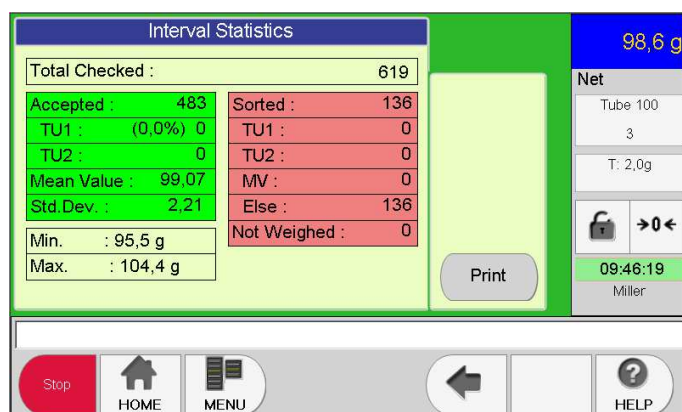
15" terminal The following screen is displayed:



Only 15" terminal:

The remaining time or the residual number of units of the current measuring interval is specified under the **Start Time** section. A bar increasing from left to right symbolizes the time that has already expired or the number of units already produced.

7" terminal The following screen is displayed:



The parameters shown on the screen are the same as the ones for the total statistics (see Chapter 3.2.5 "Total Statistics").

3.2.8 Batch Statistics

This statistics views the production section since the last entry of a batch number. This allows the operator to obtain an overview of the production result whenever a batch has been completed – before the batch number of the next batch is entered.

1. Touch the menu button  or  in the **basic screen**.
2. Select the menu items **Production Data – Statistics – Batch Statistics**.

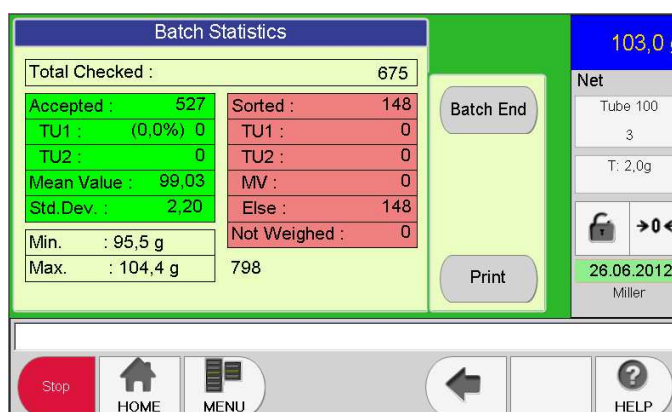
15" terminal The following screen is displayed:



Only 15" terminal:

The batch number that uniquely assigns the result to the batch is positioned under the **Start Time** section.

7" terminal The following screen is displayed:



The parameters shown on the screen are the same as the ones for the total statistics (see Chapter 3.2.5 "Total Statistics").

3.2.9 Records Table

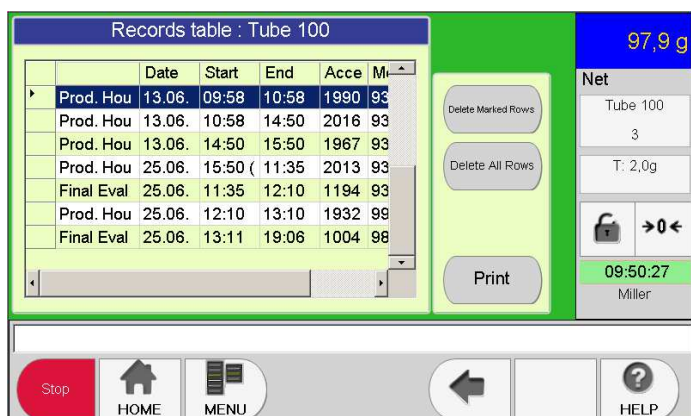
In this menu final evaluations and statistics that are based on automatic data storage in a 60-minute rhythm or, if the **10,000 Pcs Rule** is applied, before the selected number of minutes has expired, as soon as the checkweigher has weighed 10,000 accepted products can be called up and – if the printer function is activated – printed out.

1. Touch the menu button  or  in the **basic screen**.
2. Select the menu items **Production Data – Statistics – Records Table**.

15" terminal The following screen is displayed:



7" terminal The following screen is displayed:



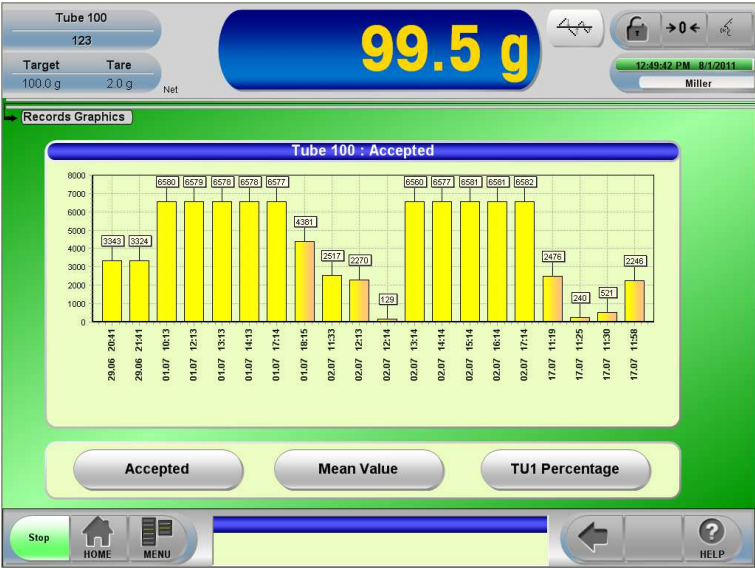
3. Select the desired evaluation by scrolling and touching in the **Records Table** list field.

3.2.10 Records Graphics

The selected final evaluation or statistics can be displayed graphically in this menu.

- 1. Touch the menu button  or  in the **basic screen**.
- 2. Select the menu items **Production Data – Statistics – Records Graphics**.

15" terminal The following screen is displayed:



7" terminal The following screen is displayed:



- 3. The buttons can be used to toggle between the mean value, tolerance limit (in the example TU1%) and the number of accepted products.

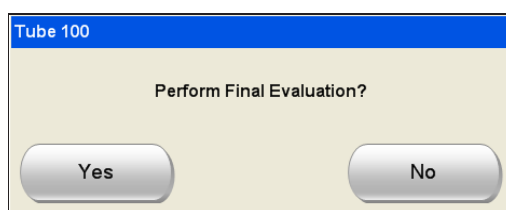
3.3 Initiating the final evaluation

As a rule a final evaluation is initiated automatically in combination with specific actions, for example when the target weight is changed. The 7" terminal and 15" terminal differ slightly in their access to the final evaluation, but the final evaluation can be initiated manually in several menus at both terminals.

At the 15" terminal it is additionally possible to initiate the final evaluation manually by using the option in the **Actions** menu.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Actions – Final Evaluation**.

The following prompt is displayed:



3. If the final evaluation is to be carried out, touch .

– or –

If a final evaluation is not desired, cancel the process with .

3.4 Changing the batch number

This action allows the batch number to be changed directly in the **Actions** menu. The entry and saving of a new batch number results in the storage of the previous statistical records in the form of a printout or in the storage **Stored Printouts**. The values of the current batch statistics are deleted. The batch statistics recording restarts with the new batch number.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Actions – Batch**.

The screen keyboard is displayed and the new batch number can be entered.

Note

The batch number can furthermore be changed in the **Interval Setup** screen at the master data and in the **Batch Statistics** screen (only 15" terminal).

3.5 Sample Rejecter

The **Items** menu can be extended with the **Sample Rejecter** action. A defined number of products can be rejected from the running production line to check the products (also see **X-Series System Manual Part 4**, Chapter 6.2 "Items").

During the recording the test products are rejected by the rejecter that is set at the function parameters.

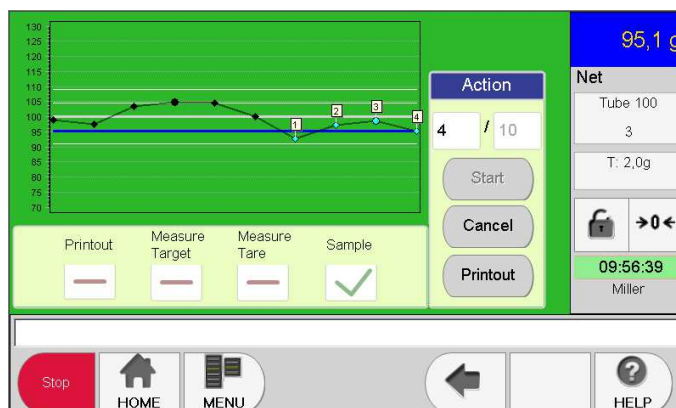
1. In the **Action** section activate the **Sample Rejecter** field.
2. If a different number of measurements than the displayed number is desired: Enter the desired number of the products in the **Sample Rejecter** section into the / field behind the slash.
3. Touch .

Individual value recording begins. The recorded products have a sequential number assigned via the measuring points:

15" terminal



7" terminal



After the measurement has expired, a record of the detected measured values is displayed.

3.6 Stored Printouts

In this menu the stored printouts that have arisen since the program start or since the last deleting can be called up, printed out and deleted.

Note

The memory for stored printouts is limited. Above 350 store printouts a corresponding information is displayed. Above 400 stored printouts an information is displayed that no further printouts can be stored. New printouts are lost.

1.

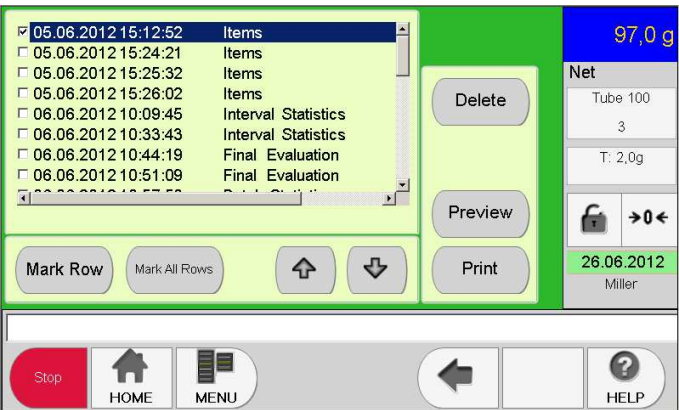
Touch the menu button  in the **basic screen**.
2.

Select the menu items **Information – Stored Printouts**.

15" terminal The following screen is displayed:



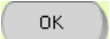
7" terminal The following screen is displayed:



- Printing or deleting printouts**
1. Use  or  to select the desired line and touch .
The box at the line beginning is activated.
 2. If necessary, further printouts can be marked in the same way.
– or –
 3. Use  to activate all the stored printouts simultaneously.
 4. Touch  to print all the activated printouts.
– or –
Touch  to delete all the activated printouts.

- Displaying printout**
1. Use  or  to select a desired line and touch .
The marked line has a blue background.
 2. Touch .
The following window (example) is displayed:



3. Touch  to print the stored printout.
– or –
Touch  to close the preview.

Note

Printed data are not deleted automatically. In order to obtain a better overview we recommend deleting the entries/lines already printed out after having checked the printouts.

3.7 Gliding Limits

Instead of fixed limits for the weight classification and sorting/rejecting, there are two fixed outer limits (adjustable by selecting the menu item Limit setup) and between these limits two automatically variable limits: **Offset plus** and **Offset minus** with reference to the reference value when working with gliding limits. With slightly varying mean values the limits **Offset plus** and **Offset minus** are updated within the outer limits. When the inner (gliding) limits reach the outer limits, an individual message or a signal can be output via a potential-free contact optionally.

Note

When working with gliding limits the values may not be used for control purposes in the sense of the pre-packaged goods legislation.

3.7.1 Setup

The option **Gliding Limits Setup** supplements the master data of the current article.

Note

These settings can only be edited by persons with the appropriate authorization level.

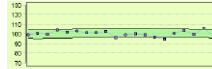
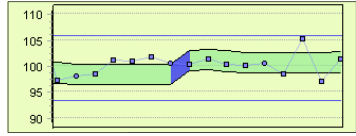
1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Gliding Limits Setup**.

The following screen is displayed:



The screenshot displays the 'Gliding Limits Setup' interface. At the top, the status bar shows 'Tube 100' and '123'. A large blue box displays the weight '98.0 g'. Below this, the 'Gliding Limits Setup' form is visible. It includes checkboxes for 'Gliding?' and 'Auto Adjust', both of which are checked. Input fields are provided for 'Offset Plus' (4.5), 'Offset Minus' (4.5), 'Qty.' (4), 'Tolerance Range' (2.00), 'Qty for MV' (10), 'Reference' (100.0), 'Max Zone' (Zone2), and 'Min Zone' (Zone2). A right-hand menu lists navigation options: 'Tube 100', 'Main Package Setup', 'Add Package Setup', 'Gliding Limits Setup' (highlighted), 'Limit Setup', 'Statistical Limits', and 'Interval Setup'. At the bottom right of the form are buttons for 'Apply', 'Edit', and 'Cancel'. The bottom status bar contains 'Start', 'HOME', 'MENU', and 'HELP' buttons.

The input fields have the following meaning:

Field	Description
Gliding?  	Switch gliding limits off/on  Green: Gliding limits activated  Gray: Gliding limits not activated
Offset plus	Permissible deviation upward
Offset minus	Permissible deviation downward
Qty for AV	This value specifies the number of products whose weights are to be used continuously for the calculation of the mean value of the gliding limit.
Reference	Reference weight for the gliding limits The nominal weight entered for the article is displayed automatically as a proposal. The value can be overwritten or be determined through weighing. In order to specify the reference weight through weighing, enter the value 0. When the production starts the first accepted product will be used automatically as the reference weight.
Auto Adjust	 Allows the volatile adjustment of the gliding limits to minimize the permanent rejection under consideration of the Quantity and Tolerance Range .
Quantity	Only when Auto Adjust is activated (see previous entry): Required minimum number of consecutive products lying outside the gliding zone (i.e. between gliding and fixed limit). When this number is reached, the gliding limits are adjusted volatily.
Tolerance Range	Only when Auto Adjust is activated: The tolerance range is used to minimize the permanent rejection in the event of a series of errors. If in a series of errors the difference between the heaviest product (X_o) and the lightest product (X_u) of a series of errors is smaller than, or equal to, the entered tolerance range, the value lying in the middle between X_o and X_u is used as the new reference weight. This results in as immediate adjustment of the normally slow gliding limits.
Max Zone	Special case: Instead of only the Good zone (default setting) the upper zone can be included in the calculation of the gliding mean value.
Min Zone	Special case: Instead of only the Good zone (default setting) the lower zone can be included in the calculation of the gliding mean value.

3.7.2 Individual items display with gliding limits

1. Touch the **View Individual Weights** section in the **basic screen**.

– Or –

Touch the menu button  in the **basic screen** and select the menu items **Production Data – Charts – Items**.

The following screen is displayed, the **Printout** action is active.



Item	Explanation
1	Absolute upper limit
2	Upper gliding limit: Reference + Offset plus
3	Reference
4	Lower gliding limit: Reference – Offset minus
5	Absolute lower limit

The brighter "hose" of the upper and lower gliding limit moves slightly between the absolute upper and lower limit.

Note

This "hose" as a feature of the option **Gliding Limits Setup** is also displayed at the actions **Measure Target** and **Measure Tare**. For further information about the actions see **X-Series System Manual Part 4**, Chapter 6.2 "Items".

3.8 Feedback Control

The feedback setup function is used to adjust up to six fillheads of a filling machine. The checkweigher constantly determined the mean value of the last weighings. Systematic weight deviations of the products can thus be recognized and assigned to the affected fillhead. The filling behavior of the filling machine is readjusted optimally by means of control signals through the feedback connections.

The feedback control is passive immediately after the beginning of production. Recording of the weight values does not begin until the number of products that was specified for the start phase and for the neutral section between the filling machine and the checkweigher has passed the checkweigher.

3.8.1 Settings for the feedback control at the 15" terminal

The **Feedback Setup** option is displayed in the selection window of the master data of the current package at the top right.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Feedback Setup**.

1st tab The following screen is displayed:

Note

The display depends on the activation of parameters.

If the **Optimal Overfill** field is activated, some fields are hidden and further fields are displayed:

The input fields in the **1st tab** have the following meaning:

Field	Description
Upper Limit Lower Limit	Product weights above the upper limit and below the lower limit are not included in the mean value calculation.
Tolerance+* Tolerance-*	Not if Optimal Overfill is activated. If the mean value lies between Tolerance+ and Tolerance-, no feedback activity is carried out. If the mean value lies between Tolerance+ and the upper limit or between Tolerance- and the lower limit, feedback activity is carried out.
Target	Weight that represents the target to be achieved using the feedback setup. This weight may deviate from the nominal (target) weight.
Start Phase	This value specifies the number of products whose weights are not yet to be used for the calculation of the mean value of the feedback control directly after the checkweigher has been switched on.

Field	Description
Feedback Add-Ons	
Combination with Statistics*	Only if the options Statistics and Combination with Statistics are activated. Use statistics from a longer period as the basis for calculation instead of individual random samples. This list field is used to specify the basis to be used for the calculation of the mean value: Off Deactivate Combination with Statistics. Hour Statistics Include the current mean value of the current hour in the calculation. Total Statistics Include the current mean value of the total statistics in the calculation.
Boost*	Only if the options Statistics and Statistics Boost are activated. Activated: The feedback setup controls stronger based on the continuous analysis of the increase in the mean value.
Optimal Overfill*	Only if the options Statistics and Optimal Overfill are activated. Calculation of the optimal mean values on the basis of the standard deviation.
Buffer size*	Only when Optimal Overfill is activated. The weights stored in the buffer (buffer memory) are used to calculate the actual machine distribution of the filler ("sliding spot checks"). As long as the buffer is not filled completely with individual weights, the "Optimal Overfill" function is not active, because no reliable statement about the standard deviation is available yet. During this waiting period the "Optimal Overfill" function consistently follows the specified target weight.
TU1% Stop*	Only when Optimal Overfill is activated. This parameter influences the calculation of a new target weight. The "Optimal Overfill" function is only active below this limit. If the TU1 % value exceeds this limit during operation, a new target weight is only calculated in as far as it is larger than the previous one – otherwise the last value determined continues to be used.
Variance Factor*	Only when Optimal Overfill is activated. Determines the dependency of the feedback setup from setups already carried out in the past. The higher the factor, the more the past influences a new setup.

* Fields depend on the activation of the corresponding options.

2nd tab

The screenshot shows the 'Feedback Setup' screen. At the top, it displays 'Tube 100' and '123'. The main display shows a large weight of '98.0 g'. Below this, there are two tabs, '1' and '2', with '2' being the active tab. The 'On' checkbox is checked. The 'Control Factor' is set to '1.000' s/g. The 'Neutral' value is '0'. The 'Qty for MV' is '4'. On the right, a list of setup options is shown, with 'Feedback Setup' highlighted. At the bottom, there are buttons for 'Start', 'HOME', 'MENU', and 'HELP'.

The input fields in the **2nd tab** have the following meaning:

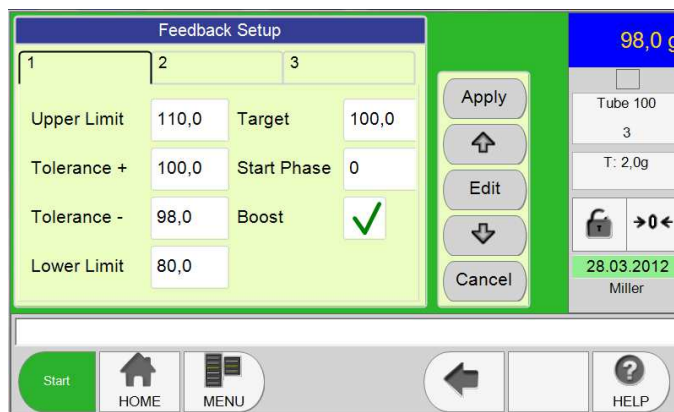
Field	Description
On	Switch feedback setup on/off.
Control Factor	Control factor for adjusting the filling machine in accordance with the filling machine specification. Numerical input.
Control Factor*	Option: Two separate control factors for increasing and decreasing the filling volume: 
Neutral	Number of products that are located on the (neutral) section between the filling machine and weighing conveyor and can therefore no longer be detected by the feedback setup.
Qty for AV	This value specifies the number of products whose weights are to be used continuously for the calculation of the mean value of the feedback control.
Boost*	Only when Boost is activated in the first tab. Option: Two separate controllers ( ) for increasing and decreasing the boost.

* Controllers depend on the activation of the corresponding options.

3.8.2 Settings for the feedback control at the 7" terminal

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Feedback Setup**.

1st tab



The input fields in the **1st tab** have the following meaning:

Field	Description
Upper Limit Lower Limit	Product weights above the upper limit and below the lower limit are not included in the mean value calculation.
Tolerance+ Tolerance–	If the mean value lies between Tolerance+ and Tolerance–, no feedback activity is carried out. If the mean value lies between Tolerance+ and the upper limit or between Tolerance– and the lower limit, feedback activity is carried out.
Target (weight)	Weight that represents the target to be achieved using the feedback setup. This weight may deviate from the nominal (target) weight.
Start Phase	This value specifies the number of products whose weights are not yet to be used for the calculation of the mean value of the feedback control directly after the checkweigher has been switched on.
Boost	Boost activated/deactivated

2nd tab

The input fields in the **2nd tab** have the following meaning:

Field	Description
On	Switch feedback setup on/off.
Neutral	Number of products that are located on the (neutral) section between the filling machine and weighing conveyor and can therefore no longer be detected by the feedback setup.
Qty for AV	This value specifies the number of products whose weights are to be used continuously for the calculation of the mean value of the feedback control.
Control factor	Control factor for adjusting the filling machine in accordance with the filling machine specification. Numerical input. Option: Two control factors for adapting to different bulk densities.
Boost*	Only when Boost is activated in the first tab. Option: Two separate controllers ( ) for increasing and decreasing the boost.

3rd tab

The screenshot shows the 'Feedback Setup' window with three tabs. The third tab is active, displaying the following settings:

- Optimal Overfill:** Checked (green checkmark)
- Buffersize:** 1000
- TU1% Stop:** 1,95
- Variance Factor:** 2,00
- Combination With Statistics:** Off (dropdown menu)

On the right side of the window, there are buttons for 'Apply', 'Edit', and 'Cancel'. The top right corner displays a weight of '98,0 g'. The bottom bar contains 'Start', 'HOME', 'MENU', and 'HELP' buttons.

The input fields in the **3rd tab** have the following meaning:

Field	Description
Feedback Add-Ons	
Combination with Statistics*	Only if the options Statistics and Combination with Statistics are activated. Use statistics from a longer period as the basis for calculation instead of individual random samples. This list field is used to specify the basis to be used for the calculation of the mean value: Off Deactivate Combination with Statistics. Hour Statistics Include the current mean value of the current hour in the calculation. Total Statistics Include the current mean value of the total statistics in the calculation.
Optimal Overfill*	Only if the options Statistics and Optimal Overfill are activated. Calculation of the optimal mean values on the basis of the standard deviation.
Buffersize*	Only when Optimal Overfill is activated. The weights stored in the buffer (buffer memory) are used to calculate the actual machine distribution of the filler ('sliding spot checks'). As long as the buffer is not filled completely with individual weights, the "Optimal Overfill" function is not active, because no reliable statement about the standard deviation is available yet. During this waiting period the "Optimal Overfill" function consistently follows the specified target weight.

Field	Description
TU1% Stop*	Only when Optimal Overfill is activated. This parameter influences the calculation of a new target weight. The "Optimal Overfill" function is only active below this limit. If the TU1% value exceeds this limit during operation, a new target weight is only calculated in as far as it is larger than the previous one – otherwise the last value determined continues to be used.
Variance Factor*	Only when Optimal Overfill is activated. Determines the dependency of the feedback setup from setups already carried out in the past. The higher the factor, the more the past influences a new setup.

3.8.3 Feedback control with individual items display at 15" terminal

The button for jumping directly to the graphical display of the feedback setup at the individual items is located in the **basic screen** next to the weight display.

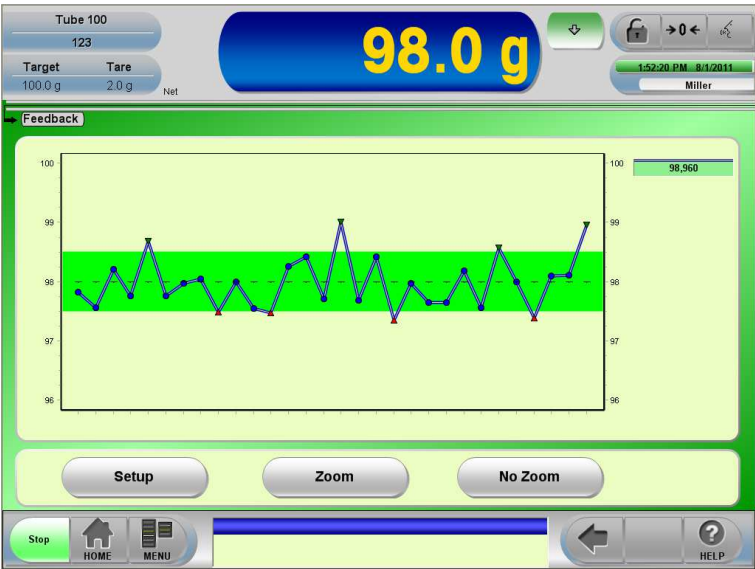
When the feedback control is activated, the button for the feedback control changes its appearance depending on the control process:

	Neutral (currently no intervention)
	Current feedback control activity downward
	Current feedback control activity upward

→ In the **basic screen** touch .

A graphical display of the last 30 feedback control activities is displayed.

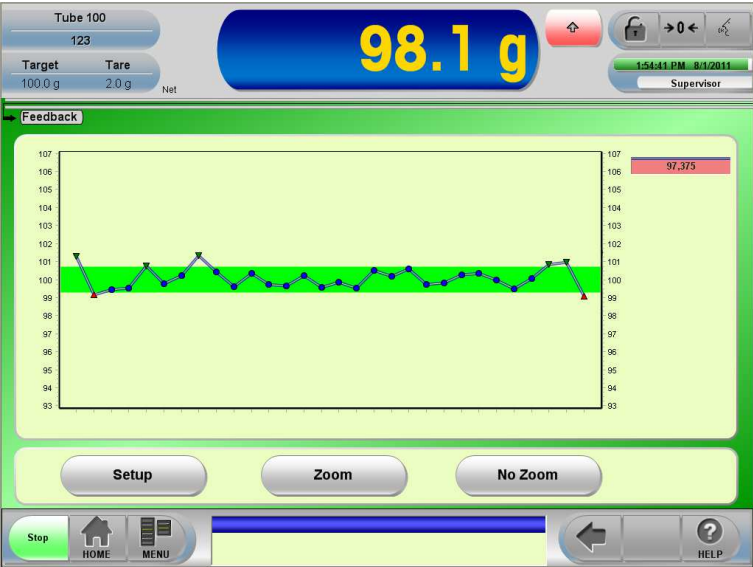
Exceeding of the upper tolerance limit



Exceeding of the upper tolerance limit is displayed as follows:

- A green triangle in the control chart at the corresponding item
-  for the current feedback control activity downward

Undershooting of the lower tolerance limit



Undershooting of the lower tolerance limit is displayed as follows:

- A red triangle in the control chart at the corresponding item
-  for the current feedback control activity upward

3.8.4 Feedback control in the individual items display at 7" terminal

The button for jumping directly to the graphical display of the feedback setup at the individual items is located in the **basic screen** under the weight display.

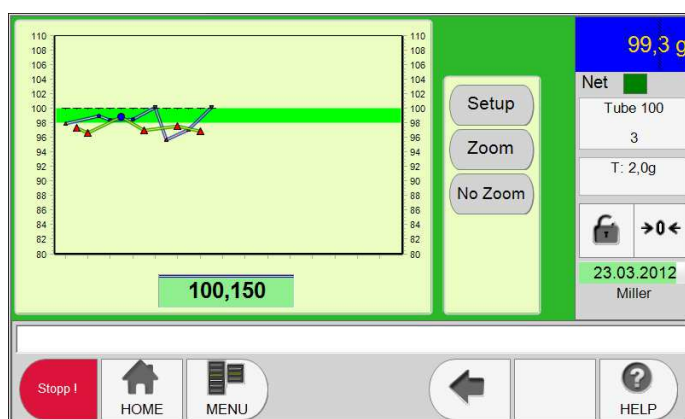
When the feedback control is activated, the button for the feedback control changes its appearance depending on the control process:

	Neutral (currently no intervention)
	Current feedback control activity downward
	Current feedback control activity upward

→ Touch the button  in the **basic screen**.

A graphical display of the last feedback control activities is displayed.

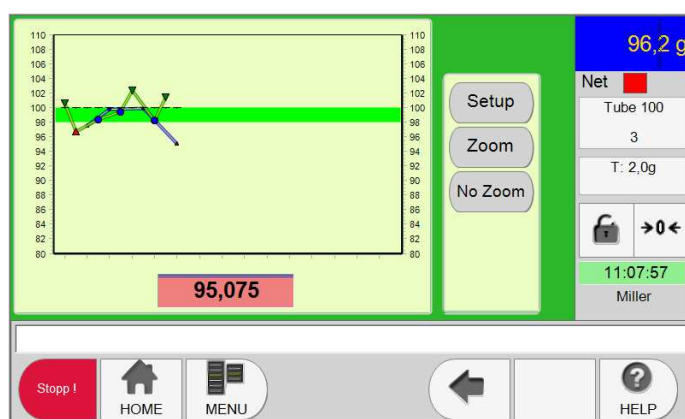
Exceeding of the upper tolerance limit



Exceeding of the upper tolerance limit is displayed as follows:

- A green triangle is displayed in the control chart at the corresponding item.
- The field of the control chart becomes green as a sign of the current feedback setup downward.

Undershooting of the lower tolerance limit



Undershooting of the lower tolerance limit is displayed as follows:

- A red triangle is displayed in the control chart at the corresponding item.
- The field with the weight display under the control chart becomes red as a sign of the current feedback setup upward.

3.9 FreeWeigh

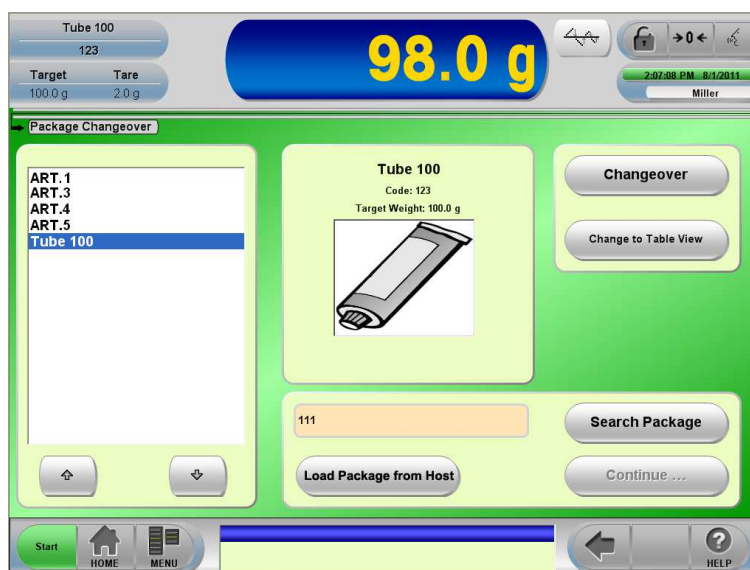
If the weighing terminal is connected by this option to the METTLER TOLEDO FreeWeigh software, any package in the external database can be searched and loaded.

Further information about the FreeWeigh software is available in the separate FreeWeigh documentation.

Package change with FreeWeigh

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Package Maintenance – Package Changeover**.

The last view set is displayed during the callup:



3. Enter the desired package name in the input field via .
4. Touch .

The further selection is controlled by **FreeWeigh**.

Load Package from Host

In as far as the **FreeWeigh** option is active, a package can be loaded directly from the database with this action.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Actions – Load Package from Host**.
3. Enter the name of the package or search for the package in the database.
4. Load the package.

The system changes the current package.

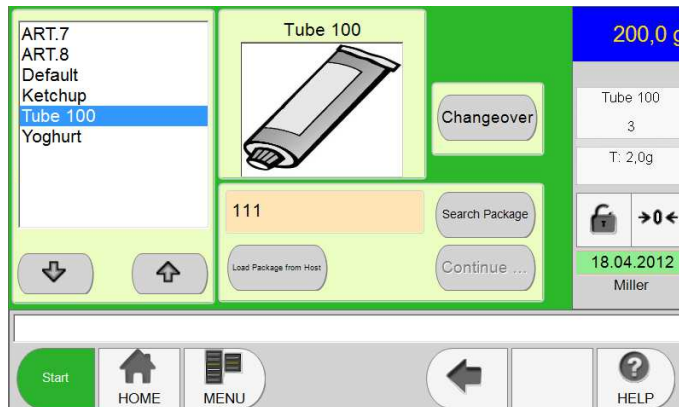
7" terminal If the weighing terminal is connected by this option to the METTLER TOLEDO FreeWeigh software, any package in the external database can be searched and loaded.

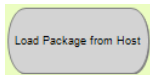
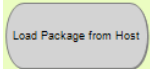
Further information about the FreeWeigh software is available in the separate FreeWeigh documentation.

Package change with FreeWeigh

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Package Maintenance – Package Changeover**.

The last view set is displayed during the callup:



3. Enter the desired package name in the input field via .
4. Touch .

The further selection is controlled by **FreeWeigh**.

Load Package from Host In as far as the **FreeWeigh** option is active, a package can be loaded directly from the database with this action.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Actions – Load Package from Host**.
3. Enter the name of the package or search for the package in the database.
4. Load the package.

The system changes the current package.

3.10 ProdX

If the weighing terminal is connected by this option to the METTLER TOLEDO **ProdX** software, any package in the external database can be searched and loaded.

Package change with ProdX

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Package Maintenance – Package Changeover**.

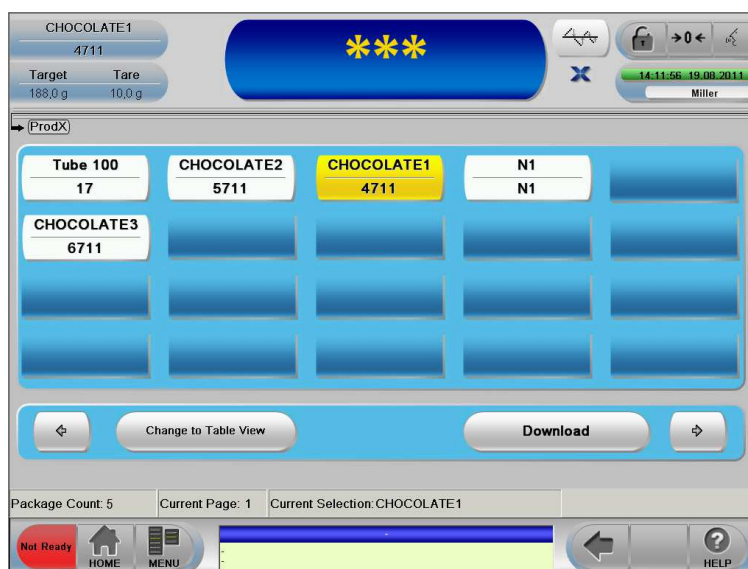
The following screen is displayed:



3. Touch .

ProdX is called up.

The following screen is displayed:



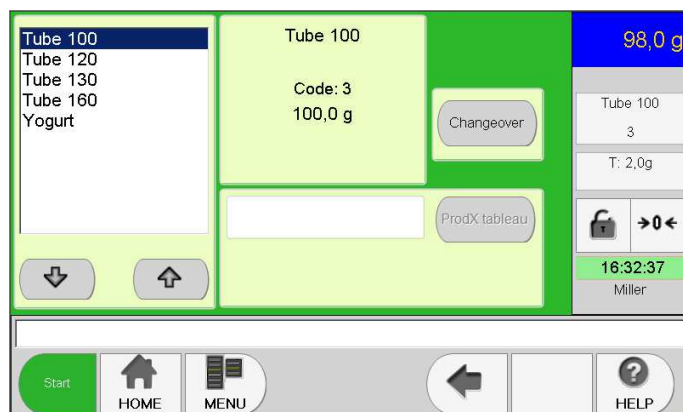
4. Select the package.

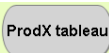
Further information about the **ProdX** software is available in the separate **ProdX** documentation.

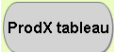
7" terminal If the weighing terminal is connected by this option to the METTLER TOLEDO **ProdX** software, any package in the external database can be searched and loaded.

- Package change with ProdX**
1. In the **basic screen** touch the menu button .
 2. Select the menu items **Packages – Package Maintenance – Package Changeover**.

The following screen is displayed:

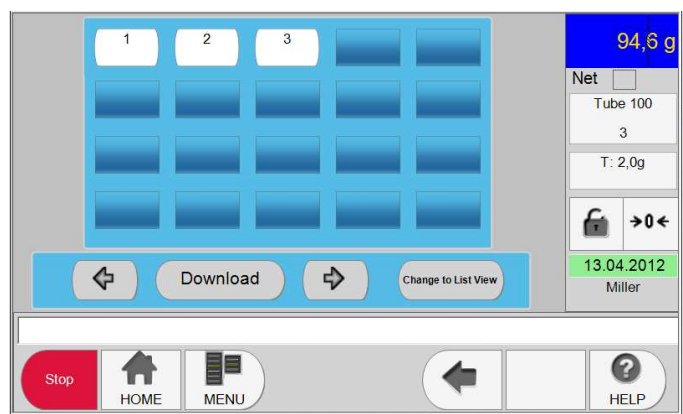


3. Enter the desired package name in the input field left to **ProdX tableau** .

4. Touch **ProdX tableau** .

ProdX is called up.

The following screen is displayed:



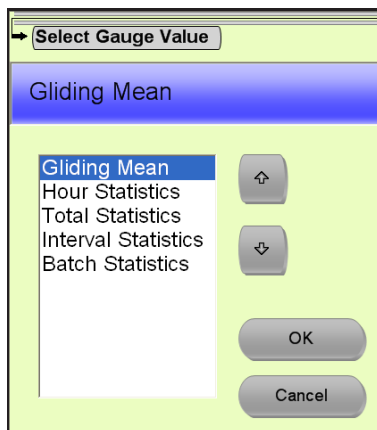
Further information about the **ProdX** software is available in the separate **ProdX** documentation.

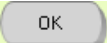
3.11 Mean value monitoring

This option monitors the observance of an upper and a lower test limit for that mean value that is selected in the basic screen for the left-hand "gauge". When the mean value reaches a limit, an individual message or a signal can optionally be output via a potential-free contact.

1. In order to check, and if applicable, change the set means value in the **basic screen** touch the left-hand gauge.

The following window is displayed:



2. If required, use  or  to select a different mean value and touch .

Selecting parameters The parameters for this option are managed in the **Package Setup (3)** screen.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Package Setup (3)**.

The following screen is displayed:



In this screen values are suggested for the limits after whose overshooting or undershooting an external signal and/or a message is triggered (e.g. horn or indicator lamp).

Field	Description
Upper Test Limit	The system automatically calculates an upper test limit for the selected mean value on the basis of the target weight. This value can be changed if required.
Lower Test Limit	The system automatically calculates a lower test limit for the selected mean value on the basis of the target weight. This value can be changed if required.

Note

The parameters for the **Mean Value Monitoring** are set by the system administrator in accordance with the values in the **Main Package Setup** menu.

3.12 Volume Filling

This option is used for products whose filling substance is to be indicated in ml or l. At this option the target filling volume in ml is displayed instead of the target weight in g.

If this option is to be used:

- Enter the target filling volume in ml in the **Main Package Setup** screen instead of the target weight.
- Set the unit to "ml".
- Enter the corresponding limits in ml in the **Limits** screen.

The current target filling volume is displayed in ml in the upper area of the **basic screen**.

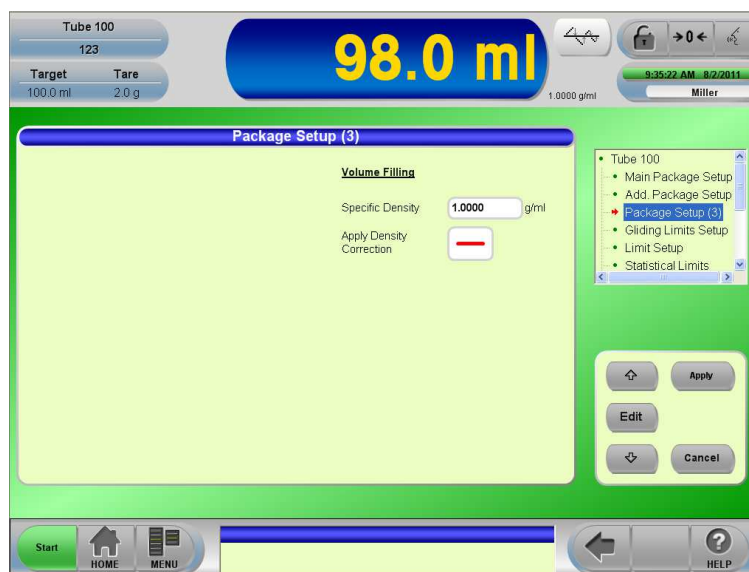
The parameters for this option are managed in the **Package Setup (3)** screen.

Information about packages with an entered fixed tare

For statutory reasons tare may not be taken into consideration in static operation (stopped drives), but rather only the gross weight of the filling substance. The display can therefore be incorrect by the value of the tare (i.e. correspondingly in ml) in static operation.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Package Setup (3)**.

The following screen is displayed:



In this screen the following entries are additionally required or possible:

Field	Description
Specific Density	Enter the specific density of the filling substance in g/ml. The displayed filling volume is calculated from the respective current weight value and the entered specific density. In the basic screen the specific density is displayed additionally next to the filling volume display.
Apply Density Correction	The density correction takes into account that weighing takes place under atmospheric pressure and not in a vacuum. In the basic screen an active density correction is indicated by an asterisk (*) behind the specific density.

Note

When weighing data are transferred via a serial interface, the checkweigher there output the respective weight in g, not the filling volume in ml.

3.13 Counter weigher

Counter weighers have the task of displaying the calculated number of units instead of the net weight. To this purpose they measure the number of objects on the basis of the piece weight of the content to be counted. The desired unit (g / pcs) can be selected individually for each package.

If this option is to be used, the unit has to be set to "pcs" in the **Main Package Setup** screen.

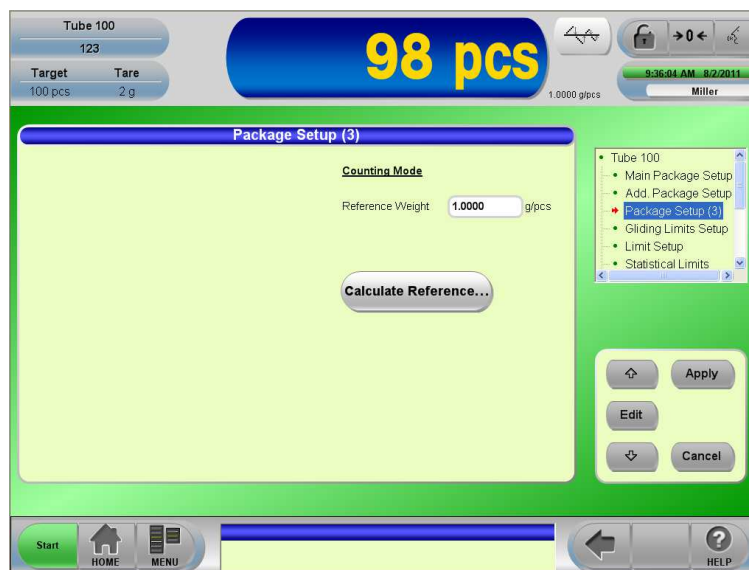
The reference weight is determined by means of a wizard function. The tare has to be entered previously.

Note

For statutory reasons tare may not be taken into consideration in static operation (stopped drives), but rather only the gross weight. The display can therefore be incorrect by the value of the tare in static operation.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Package Setup (3)**.

The following screen is displayed:



3. Touch .

The following screen is displayed:

The reference weight is determined in the following steps:

1. Stop the motor.

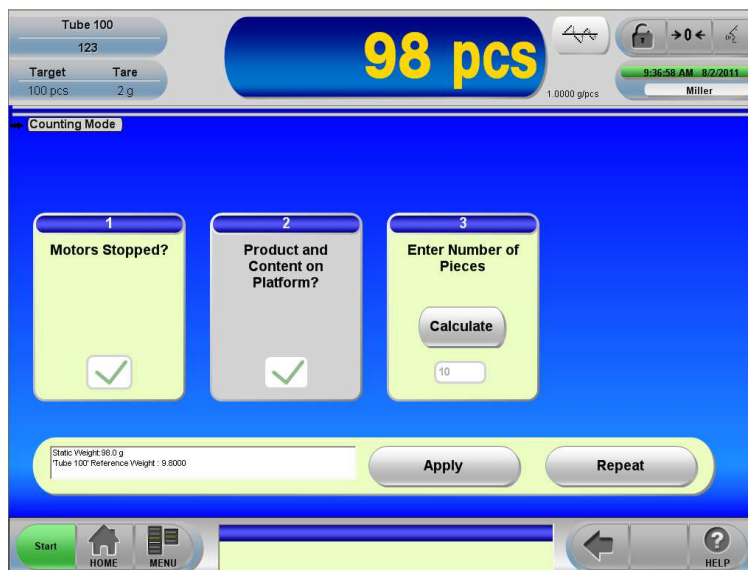
Prerequisite is that the motor is standing still. The status of the motor is recognized automatically. As a rule no action is required by the user here.

2. Place the test product on the platform and after a few seconds touch .

When carried out successfully, Step 2 becomes gray, Step 3 is displayed in the screen and the static weight of the product is displayed in the lower text field:

3. Enter the quantity of the counted content (in the example 10).
4. Touch .

In the bottom text field the mean individual weight of the contained standardized components (reference weight):



5. Touch **Apply** to accept the reference weight.

In the **basic screen** the reference weight is displayed additionally on the right next to the weight.

– or –

Touch **Repeat** to redetermine the reference weight.

3.14 Login Server

The PC program **Login Server** is a software available separately for central user administration that can be obtained from METTLER TOLEDO Garvens and that is compatible with checkweighers of the S-Series and the X-Series. The Login Server is installed and configured by the local EDP administrator.

The Login Server is a logging function with which it is possible to record which user carried out which changes when (**AuditTrail**, see Chapter 3.21).

When the Login Server is activated, this function is displayed in the **Miscellaneous Setup** screen at the **Setup – General** menu.

In the case of a corresponding configuration users of the X-Series can log in both at the Login Server and locally at the checkweigher.

Logging in at the checkweigher differs slightly from the login routine that is described in the **X-Series System Manual Part 4**, Chapter 4.1 "User login". Here the following login window is displayed:



1. Touch the input field next to Name.
The screen keyboard is displayed.
2. Enter the user ID for the Login Server and confirm with **OK**.
3. Touch the field next to Password.
The screen keyboard is displayed.
4. Enter the password for the Login Server and confirm with **OK**.

If the entries are correct, the progress bar under the user name becomes green and the checkweigher can be operated.

Note

If a connection is not established, the system issues a corresponding error message.

- Repeat the entry.
- Check the physical connection to the PC.
- If both do not produce the desired result, contact your EDP administrator.

3.15 Domain Login

In the case of user administration via a Windows Domain Server internal company accounts (access authorizations) and passwords can be used at the checkweigher. After configuration of the Windows Domain Server at the checkweigher, users can log in at the checkweigher with the same user name and the same password as they use for their office PC.

Logging in at the checkweigher differs slightly from the login routine that is described in the **X-Series System Manual Part 4**, Chapter 4.1 "User login". The same login window is displayed as for the Login Server:



1. Touch the input field next to Name.
The screen keyboard is displayed.
2. Enter the user name and confirm with **OK**.
3. Touch the field next to Password.
The screen keyboard is displayed.
4. Enter the regular password and confirm with **OK**.
If the entries are correct, the progress bar under the user name becomes green and the checkweigher can be operated.

Note

If an invalid user logs in, an incorrect password is entered or if a connection is not established, the system issues a corresponding error message.

- Repeat the entry.
- Check the physical connection to the PC.
- If both do not produce the desired result, contact your EDP administrator.

3.16 Successive errors detection

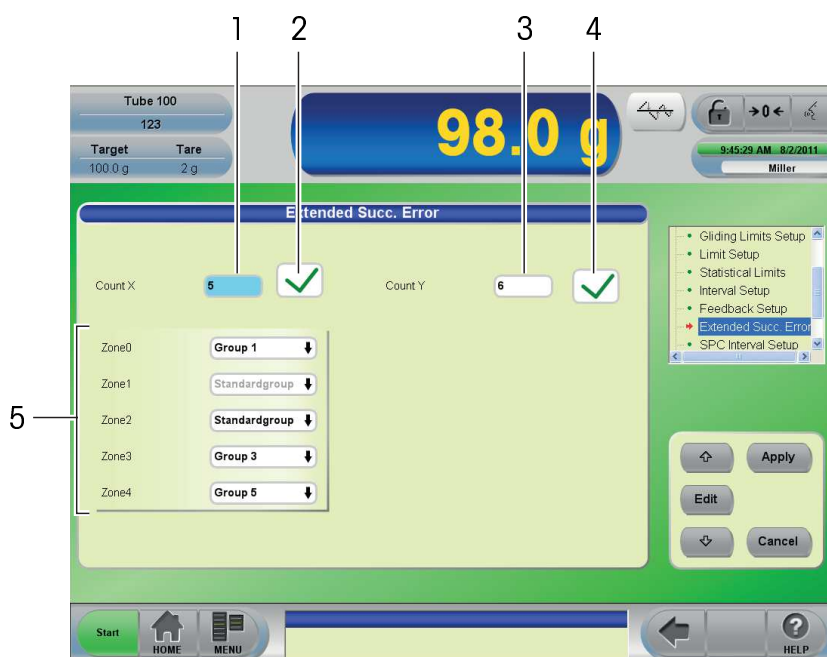
This option is used to count successive products that are classified as "not GOOD". The **Successive errors detection (X out of Y)** option furthermore allows a more tolerant working method than the standard function. X products within the last Y products have to be rejected for a successive error situation to exist.

Each weight zone can be considered individually.

Setting parameters in the package

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Active Package – Extended Succ. Error**.

The following screen is displayed:



The input fields have the following meaning:

Item	Explanation
1	Only if the Successive errors detection (2) switch is active: Count X: A successive error is recognized when the upper limit X is reached (not only when it is exceeded).
2	In addition the successive errors detection can be activated for each package separately.
3	Only if the Successive errors (X out of Y) (4) switch is active: Count Y: A successive errors situation exists if X products within the last Y products were rejected (= products classified as "not GOOD").
4	The Successive errors (X out of Y) option can additionally be activated separately for each package.

Item	Explanation
5	If the Succ. Error Groups option is active: Assignment of the individual zones to the six groups (standard group or Group 1–5). The group is grayed out for zones without a rejector. Assignment to the Groups 1–5 can be carried out in the Succ. Error Groups screen. Only if the Succ. Error Groups option is not required, are all the zones set to Standard group.

3. Activate successive error recognition for the packages (2) with .
4. Activate the **Successive errors (X out of Y)** option for the package (4) with .
5. Enter new values for the number X or the number Y.

Example: X = 5; Y = 10

Of the last Y = 10 products X = 4 were rejected: No successive error

Of the last Y = 10 products X = 5 were rejected: Successive error, action

Of the last Y = 10 products X = 6 were rejected: Successive errors, no new action

3.17 Process control and SPC trend chart

This function allows monitoring of the production process based on simple mathematical or statistical statements with the purpose of avoiding rejects.

Statistical process control can be used to recognize possible trends within the tolerance limits so that counteraction is possible before rejection has occurred. Irregular fluctuations within the tolerance limits without any trend development do not necessarily require a corrective intervention.

At short intervals the following meaningful values are calculated based respectively on a small spot check:

- Mean value
- Standard deviation
- Minimum-maximum range
- Process capability index C_p
- Critical process capability index C_{pc}

Note

SPC Trend has to be configured in the **Function Allocation** menu by the administrator.

Setting parameters in the package

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Active Package – SPC Interval Setup**.

The following screen is displayed:



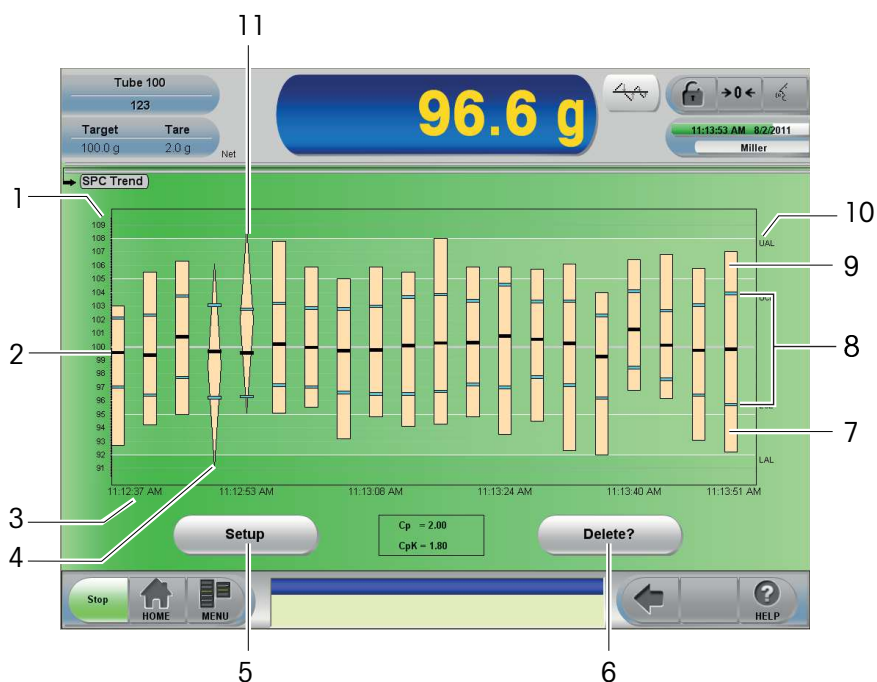
The input fields have the following meaning:

Field	Description
Sample Size	Enter the number of units that is to be used to calculate the trend data.
Interval Type	Specify the basis on which the trend data are to be calculated: Pieces After a specific number of products (weighings) Time After a specific period has expired
Interval	Define the interval in pieces or minutes depending on the Interval Type .
UA Limit	Action limit for upper action
UC Limit	Action limit for upper warning
LC Limit	Action limit for lower warning
LA Limit	Action limit for lower action

Calling up SPC trend chart

1. In the **basic screen** touch the menu button .
2. Select the menu items **Production Data – Charts – SPC-Trend**.

The following screen is displayed:

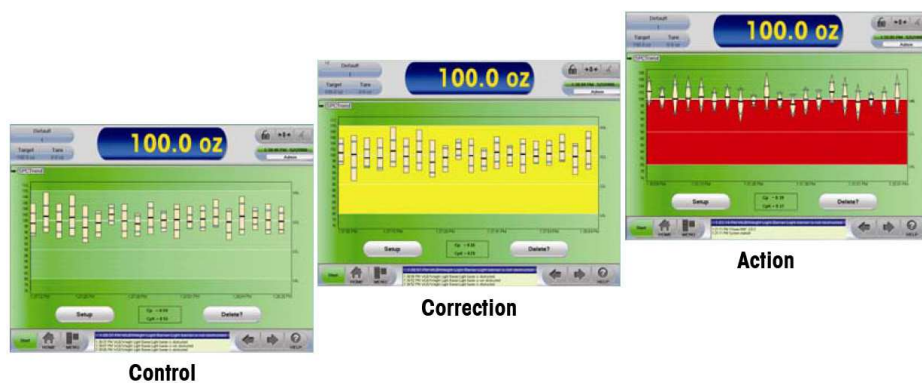


Item	Explanation
1	Weight scale
2	Mean value of the spot checks
3	Interval scale (time or pieces)
4	Violation of the lower limit LAL. At least one value of the spot check reaches this value.
5	Change to the SPC Interval Setup screen. You can return to this screen by using the Back button.

Item	Explanation
6	Delete the graphics display
7	Spot check min. value
8	Standard deviation (1σ)
9	Spot check max. value
10	Action limits LAL and UAL
11	Violation of the upper limit UAL, at least one value of the spot check reaches this value.

The color of the graphics background signals a violation of the limits:

Color	Meaning
	Mean value violates the inner limits (UCL, LCL)
	Mean value violates the outer limits (UAL, LAL)



3.18 In-Process-Test (IPT)

The **In-Process-Test (IPT)** can be used to set up various tests for the process control, for example to control ejectors, weights, a camera or to determine the target weight.

Note

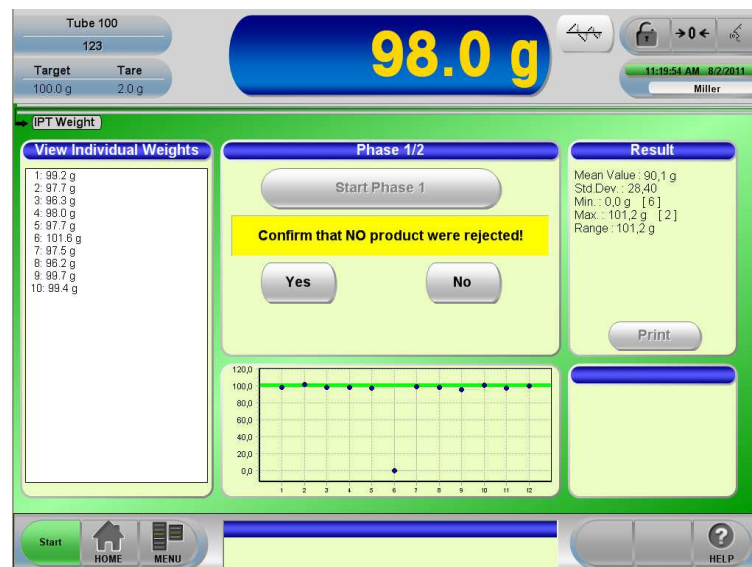
The desired IPTs have to be configured in the **Function Allocation** menu by the administrator.

After the setup the IPTs are available in the **Actions** menu. Depending on the checkweigher version and the software configuration, the menu entries can also be displayed in a different menu.

The screen has the same structure for all the IPT processes and is explained here using the IPT check weighing as an example.

IPT Weight

This IPT has two phases. This test check the correct recognition of "good" products and of those that lie above or below the approved weight limit.



- The left-hand section displays the individual weights of the weighed products as soon as Phase 1 is started.
- In the middle section the test is started and the status and the required actions are furthermore displayed.
- The lower section displays the individual weights graphically.
- The right-hand section displays the statistical results after the end of the phase.

IPT Measure Target

This IPT has only one phase in which the target weight is calculated from a specified number of "good" products and can be accepted if wished.

Camera test

This IPT has only one phase and can only be executed if the corresponding product parameters for printer, camera or other optical systems are activated.

3.19 Tare Gross System

The **Tare Gross System** allows dynamic determining of the tare weight in order to determine the net weight of an product exactly. This option is useful in particular when there are great deviations in the weight of the packaging (for example glass bottles) or in case of light expensive filled materials that weigh less than the variance of the weight of the packings.

Two checkweighers are required for the **Tare Gross System**:

- The tare weigher that determines the individual tare weight **before** the filling process.
- The gross weigher that uses the tare weight established by the tare weigher to determine the exact net weight of a product **after** the filling process.

The influence of tare weight fluctuations is minimized by the constant communication between the tare weigher and the gross weigher.

Tare weigher The tare weigher is connected to the gross weigher via a serial interface. The individual tare weights are stored by the tare weigher until successful transfer to the gross weigher has been confirmed.

Gross weigher When a GOOD product reaches the gross weigher, the corresponding tare value is taken from the buffer and used to calculate the corresponding net weight. This process is repeated on a FIFO basis (first-in first-out) for all the subsequent products.

A configurable large display for the queue allows the user to define the system characteristics and to specify the actions to be carried out for the case that an error occurs. Incoming tare weights can initiate actions under specific conditions. The actions support the user in recognizing and localizing problems in the filling station or in the communications channels between two checkweighers.

3.19.1 Displaying weights and buffer size at the gross weigher

The relevant weights and the buffer size can be displayed at the gross weigher.

1. In the **basic screen** touch the current weight display in the upper section.

– or –

Touch the menu button  in the **basic screen** and select the menu items **Production Data – Large Weight Display**.

The following screen is displayed:



The large weight display displays each determined net weight with the corresponding tare weight. Every net weight displayed in the upper graphics is allocated to the corresponding tare weight in the lower display.

In addition the active size of the gross buffer is displayed as a bar chart on the right-hand side in the display. The bar chart displays either the numerical value of the buffer size on the Y-axis or (by toggling with the "Buffer" button under the graphics) the upper and lower limit values.

If the system determines weights statically, these are displayed in the upper large weight field. The tare weight specified for the packaging in the package data is displayed in the lower weight display. During the display of the static weights the user can furthermore select each individual data point in the graphics for both the tare weights and the net weights. After selection the corresponding weights are displayed in the large weight display and the corresponding data points are identified with square fixed points. In addition the lock icon in the lower screen section changes to the "locked" state. The graphical display can no longer be changed. The display is unlocked again by selecting the lock icon. The current static weights are displayed again.

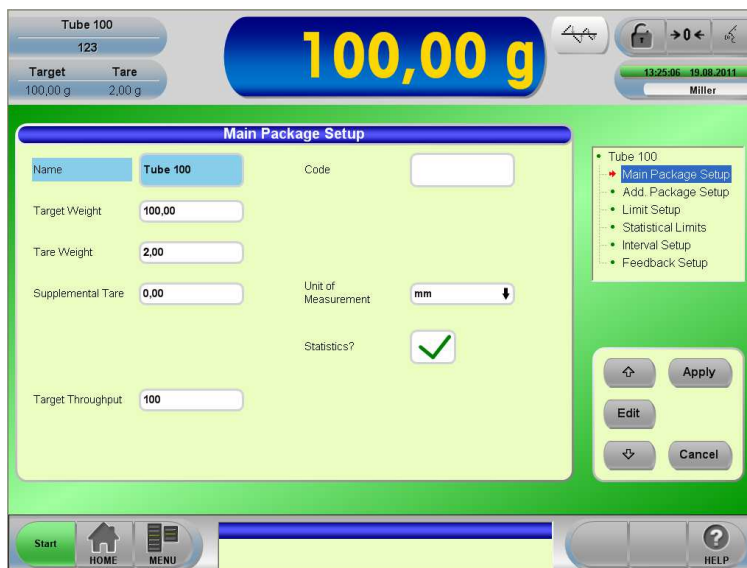
If desired, the graphics can be reset by selecting the Delete button on the right under the diagram.

3.19.2 A supplemental tare can be entered at the gross weigher

If particular characteristics of the filling system make it necessary an additional fixed tare can be entered in the **Main Package Setup** screen, the so-called **Supplemental Tare**. This supplement is added to the product after the tare has been determined by the tare weigher. Both together form the total tare that is deducted automatically from the measured product weight at the gross weigher.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Main Package Setup**.

The following screen is displayed:



The screenshot displays the 'Main Package Setup' screen. At the top, a status bar shows 'Tube 100' and '123'. A large blue display shows '100,00 g'. Below this, a table shows 'Target' as '100,00 g' and 'Tare' as '2,00 g'. The main area is titled 'Main Package Setup' and contains fields for Name (Tube 100), Code, Target Weight (100,00), Tare Weight (2,00), Supplemental Tare (0,00), Unit of Measurement (mm), Statistics? (checked), and Target Throughput (100). A right sidebar shows a tree view with 'Main Package Setup' selected. At the bottom are buttons for Start, HOME, MENU, Apply, Edit, Cancel, and HELP.

Note

The value for the tare specified in the master data of the gross weigher should correspond to the target weight set at the tare weigher.

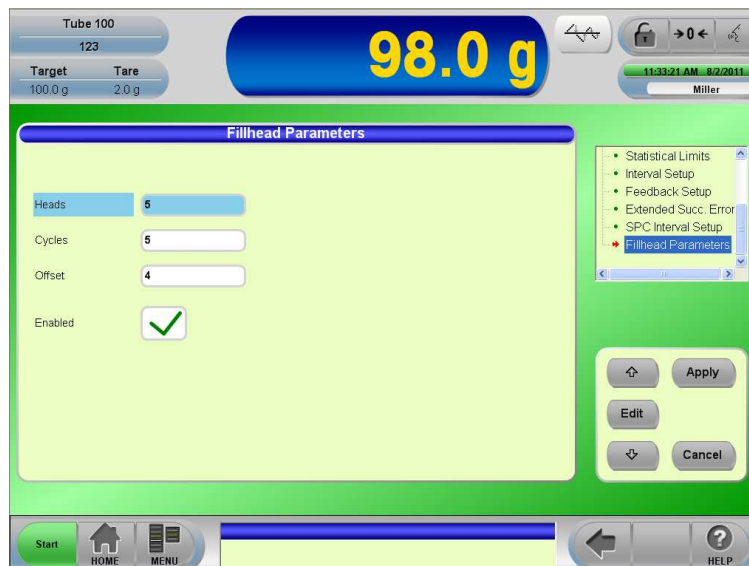
3.20 Fillhead Analysis

The filling behavior of the fillheads can be checked with this option.

Parameter setting

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Active Package – Fillhead Parameters**.

The following screen is displayed:



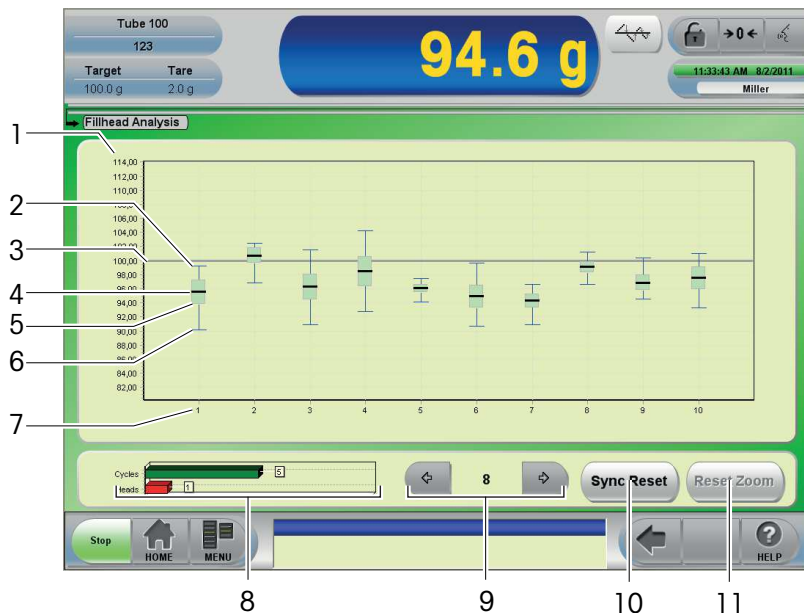
The input fields have the following meaning:

Field	Description
Heads	Enter the number of fillheads of the filling machine.
Cycles	Enter the desired number of rotations (number of weight detections per fillhead) of the filling machine until the complete test evaluation. The number of intermediate values determined is displayed continuously until the full number of cycles has been reached. When the number of specified cycles has been reached, a mean value across the last cycles to specification is then displayed.
Offset	Enter the number of products that are located between the active fillhead (Fillhead No. 1) and the checkweigher (neutral section). The offset can also be changed in the graphics display of the fillhead analysis. It displaces the chart elements to the left or right.
Enabled	Activated: The fillhead analysis is active for this package.

Displaying fillhead analysis

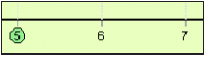
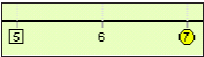
1. In the **basic screen** touch the menu button .
2. Select the menu items **Production Data – Charts – Fillhead Analysis**.

The following screen is displayed:



Item	Explanation
1	Weight scale
2	Highest determined weight value
3	Target Weight
4	Determined mean value for each fillhead
5	Standard deviation
6	Lowest determined weight value
7	Fillhead position (can be adjusted by means of Offset (9))
8	Graphics display of the cycles and fillheads
9	Offset: Number of products between the active fillhead (Fillhead No. 1) and the checkweigher. The offset displaces the chart elements to the left or right.
10	Deletes all the synchronous marks of the fillhead synchronization in as far as configured.
11	Rectangular screen sections can be zoomed by marking the section to be zoomed with your finger or a stylus on the screen and zooming. This button for resetting the zoom becomes active as soon as a screen section has been zoomed.

Fillhead synchronization Removing or adding a product between the filling station and the checkweigher can result in an incorrect assignment of the products to the fillheads and thus invalidate the result. One of the fillheads has a synchronous signal sensor for monitoring the fillhead analysis process: The checkweigher expects the same number of products between two synchronous signals. If a product is missing or the number of products is exceeded between these two signals, the checkweigher aborts the fillhead analysis and starts a new one.

	If the synchronous signal is initiated during production, the number of the fillhead currently active is marked green in the diagram of the fillhead analysis. This marking is renewed in every cycle.
	If the assignment of the synchronous signal sensor does not match the mark assigned in the previous cycle, the previous synchronous mark is displayed as a black square. The new synchronous mark is yellow.
	The Sync Reset button deletes all the synchronous marks.

3.21 Local audit trail

The **Audit Trail** creates a list in table form of the recordings of all the actions and parameter changes carried out at the checkweigher (history). The recorded data can neither be overwritten nor modified.

Audit Trail entries are never deleted automatically. They can only be deleted manually.

Note

The **Audit Trail** function can only be activated by users with a corresponding authorization.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Information – Audit Trail**.

The following screen is displayed:



3. Optionally delete, filter or export entries.

Filtering entries Filtering limits the display of the data to a subset and thus improves the overview. The data can be filtered by four criteria that can be combined freely.

1. Touch .

The following screen is displayed:



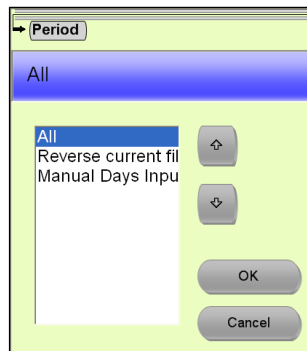
2. Set one or more filters optionally.
3. To display the filtered data touch .

– or –

To reset **all** the filters to the **All** setting touch .

Deleting entries → Touch .

The following window is displayed:



The data can be deleted in accordance with the following criteria:

Criterion	Explanation
All	The complete Audit Trail is deleted. Filters are not active.
Reverse current filter	If only a subset of the entries is displayed due to a filtering, only these entries are deleted. Note Deleting filtered data of the Audit Trail can take up to several minutes. Switching the checkweigher off during the deleting process can destroy the database. The checkweigher displays the current status as well as a warning "Please wait" as long as the deleting action has not been completed.
Manual Days Input	All the data that are older than the current date minus the set "number of days" are deleted.

Exporting entries All the displayed – filtered or unfiltered – data can be exported with the checkweigher identification to a Print Stick.

The data are stored as a CSV file in the directory "[Print_Drive]\XS\Serial_Number\Transfer\....".

1. Plug the Print Stick into the USB interface at the IPC unit.
2. Touch .

The system stores the entries on the Print Stick.

3.22 Weihenstephan standard for production data acquisition

The so-called **Weihenstephan standard** is a description of a data interface for production data acquisition at beverage filling systems drawn up by the Chair for Foodstuff Packaging Technology of the Technical University Munich.

The **Weihenstephan** interface is used to connect production data acquisition systems (PDA systems) via TCP/IP to the X-Series. This standard expects the provision of some important data, such as the machine state or the number of packaged units, from a check-weigher. Communication is carried out via a data protocol standardized for the beverage industry.

The function does not have a visual implementation.

3.23 Multi-Evaluation

Multi-evaluation is used to initiate a package change via scanner, barcode reader or contacts. There are two variants of the multi evaluation:

- Multi-evaluation via contacts
- Multi-evaluation via a barcode scanner (as of software version 2.6)

Package change via contacts

The index value of a package is created from the applied signals. The index value supplies the position of the package to which the change is to take place. Various methods are available for determining the index value, for example the height recognition of the product.

As long as no input is connected and all the contacts are open, no changeover is carried out and every multi evaluation can be deactivated temporarily without any configuration change. In this case the package has to be changed as usual manually at the operating terminal.

The changeover to a package change can be carried out synchronously or asynchronously (via an additional trigger input) to a product.

Package change via barcode scanner

A barcode scanner connected to the serial port supplies the signal for the package changeover. The user can specify the characters from the scanner string that are to be used for the identification through the start index and length. The associated scan code is stored in the package data.

You can specify whether a scan code has to be supplied for each product or whether the respectively last valid scan code is to apply for all the following products. In the first case the scan code has to have been received before the product passes the weight light barrier. Otherwise the product is rejected and counted as "Special" at the active package.

4 Software-supported mechanical options

For some mechanical options settings can be carried out via the software, for example the digital numeric indicators or metal detectors.

Note

The settings in these menus may only be carried out by users having the corresponding authorization.

4.1 Askew detection

The askew detection is used to detect and reject folded boxes that are positioned askew on the conveyor and are correspondingly too long. Depending on the design the product length is measured with one or two light barriers:

- If only **one light barrier** is available, the product length is compared with the entered maximum product length. If this length is exceeded, the product is positioned askew on the conveyor or is too long and is sorted out.
- If **two light barriers** are used, a product may always interrupt only one of the two light barriers. If both light barriers are interrupted, the product is positioned askew on the conveyor or is too long and is sorted out.

The maximum askew position permitted can be specified individually for each package at the weighing terminal depending on the maximum product length.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Add. Length**.

The following screen is displayed:



Note

If a length of "0" is entered, the function is deactivated for this package.

4.2 SIKO Digital numeric indicators

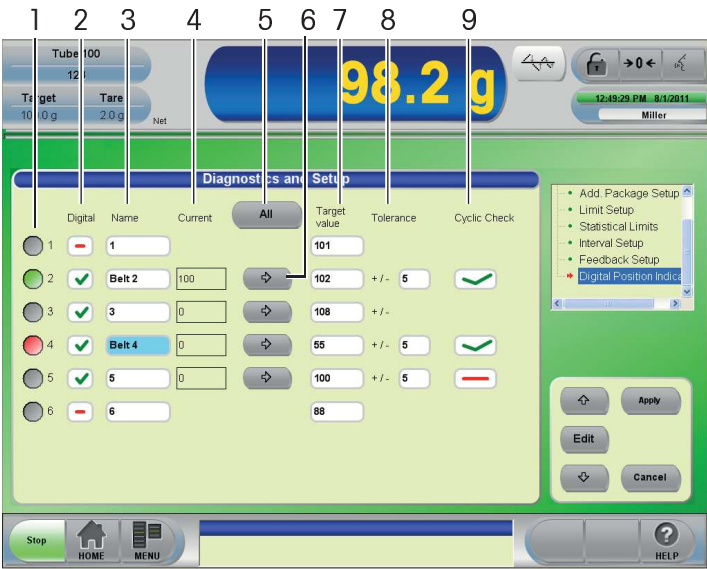
Checkweighers with mechanical adjusting equipment for transfer units or cross adjustment can be equipped with digital electronic indicators alternatively to the familiar analog value indicators.

The digital displays can display a target value that the control unit can learn and store separately for each package. This support for up to eight indicators facilitates the required setting work and fine adjustment considerably for the owner-operator.

Entering package parameters

1. In the **basic screen** touch the menu button .
2. Select the menu items **Packages – Active Package – Digital Position Indicators**.

The following screen is displayed:



Item	Explanation
1	Status of the connected indicator: • Gray: Analog Indicator or Cyclic Check are not active. • Green: Digital indicator with cyclic check; current value within the tolerance. • Red: Digital indicator with cyclic check; current value outside the tolerance.
2	Switch for differentiating between analog and digital indicators.
3	Assign a name for the numeric indicator, if required a different one for each package.
4	Current actual value of the indicator (only for digital indicators).
5	Learning: Read out actual values from all the connected digital indicators immediately and store as new setpoints.
6	Learning: Read out the actual value from this digital indicator (row) immediately and store as a new setpoint.
7	Setpoint (target value) of the indicator (at digital indicators as specification, at analog indicators only as information).

Item	Explanation
8	Tolerance window, individual for each digital indicator. The tolerance is checked as long as Cyclic Check is active.
9	Activated: Cyclic tolerance check for digital indicators. Through a corresponding configuration the start of the motors can be prevented as soon as a numeric indicator does not lie within the target window (Setpoint / Target value $\pm$ Tolerance).

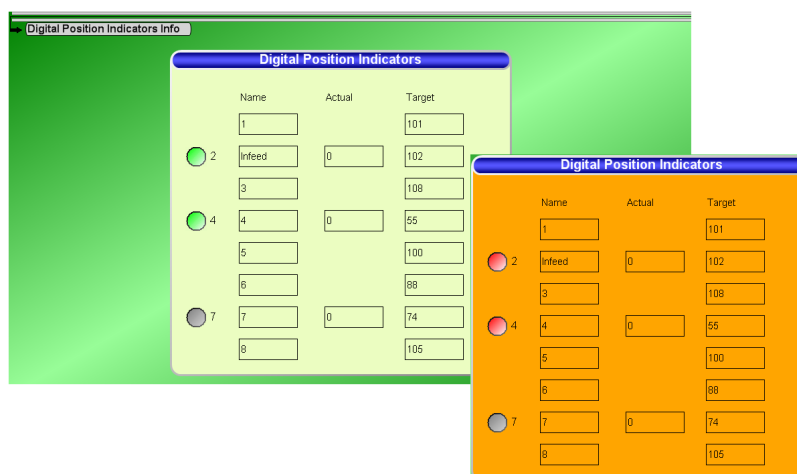
Note

The parameters of the package just activated are used when a new package is created.

Displaying the information screen

1. In the **basic screen** touch the menu button .
2. Select the menu items **Information – Digital Position Indicators Info**.

The following screen is displayed:

**Note**

The background of this screen becomes orange as soon as at least one monitored indicator lies outside the tolerance window.

4.3 Metal detector

The metal detector parameters can be stored for each created package by means of this option. When the package is changed, the metal detector is reset automatically to the parameters of the new package. The **Zones** screen in the **Production Data** menu additionally displays the "Metal" counting, i.e. the number of products reported by the metal detector.

Note

The function requires a compatible metal detector. The operation of the metal detector is described in the separate operating instructions for the metal detector.

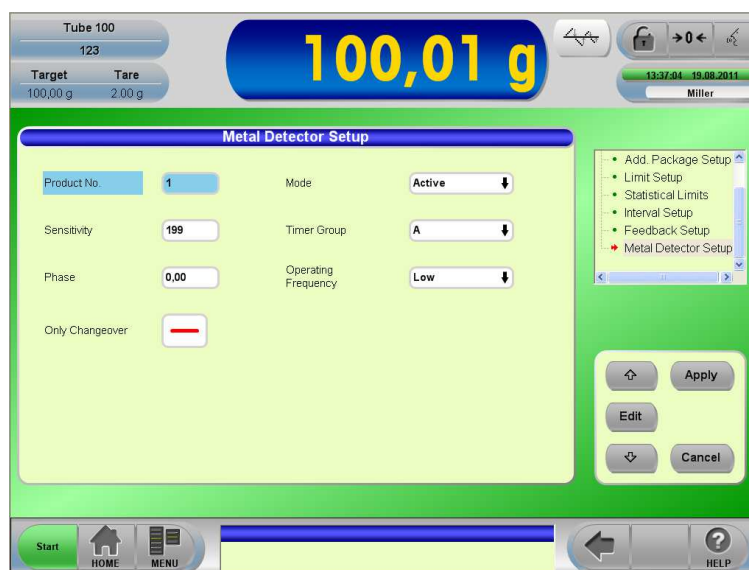
4.3.1 Metal detector settings

Some of the basic settings of the metal detector can be changed at the weighing terminal of the checkweigher.

The **Metal Detector** option is displayed in the menu at the master data of the current package.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Metal Detector**.

The following screen is displayed:



7" terminal The **Metal Detector** option is displayed in the menu at the master data of the current package.

1. Touch the menu button  in the **basic screen**.
2. Select the menu items **Packages – Active Package – Metal Detector**.

The following screen is displayed:

1st tab



Metal Detector Setup

1 2

Product No. 1

Sensitivity 199

Phase 0,00

Only Changeover —

Apply

↑

Edit

↓

Cancel

98,0 g

Tube 100

3

T: 2,0g

23.03.2012

Miller

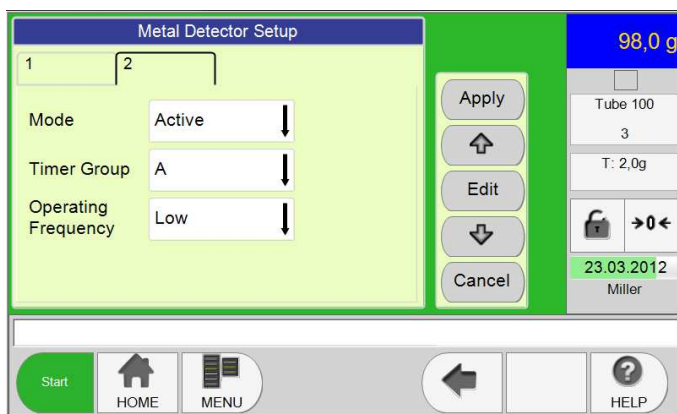
Start HOME MENU

←

?

HELP

2nd tab



Metal Detector Setup

1 2

Mode Active

Timer Group A

Operating Frequency Low

Apply

↑

Edit

↓

Cancel

98,0 g

Tube 100

3

T: 2,0g

23.03.2012

Miller

Start HOME MENU

←

?

HELP

The input fields have the following meaning:

Field	Description
Product No.	Number of the package memory under which the following settings are stored in the metal detector. Note If a package is not yet stored in the metal detector, first enter the corresponding settings manually there or let a product run through the metal detector in learn mode (see the operating instructions of the metal detector).
Sensitivity	No entry is required normally, but manual input is possible. Default factory setting that the metal detector may change automatically while a package is being "learnt".
Phase	No entry is required normally, but manual input is possible. Default factory setting that the metal detector may change automatically while a package is being "learnt".
Only Changeover	When activated, only the stored product number is sent to the metal detector when the package is changed. Individual values such as the sensitivity or phase are not sent.
Mode	Three modes are available for selection in the list field: Active Activation of the normal detection mode. Detection of metallic impurities/foreign matter. Invert Activation of the invert mode. The metal detector searches for "missing" metal e.g. screw caps. Not Active Deactivation of the detection mode. The metal detector does not examine the products for metallic impurities/foreign matter.
Timer Group	Field depending on the metal detector used. Selection of one of the three timer groups A, B, C to adjust the signal behavior to different product sizes.
Sensitivity 2	Field depending on the metal detector used. No entry is required normally, but manual input is possible. Default factory setting that the metal detector may change automatically while a package is being "learnt".
Operating Frequency	Selection of the operating frequency High or Low to adjust the search coil to the product types.

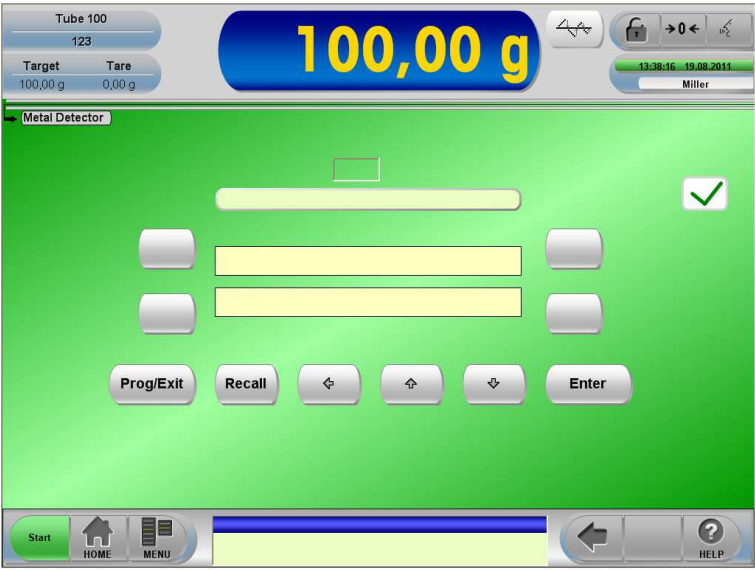
4.3.2 Metal detector remote display

The remote display emulates the operating unit of the metal detector. Depending on the version of the metal detector, more or less data can be displayed and in part changed directly.

- 1. In the **basic screen** touch the lower oval section in the **Items** section.
- or –

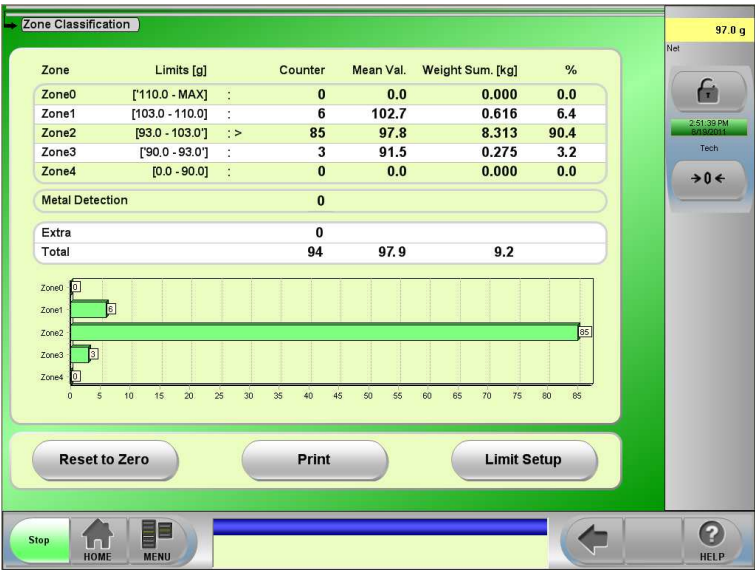
In the **basic screen** touch the menu button  and select the menu items **Setup – General – Metal Detector**.

The following screens are displayed:



Note

In the case of the **Metal Detector** option the counters in the **Zones** screen are supplemented by a counter for the products containing metal (metal recognition):



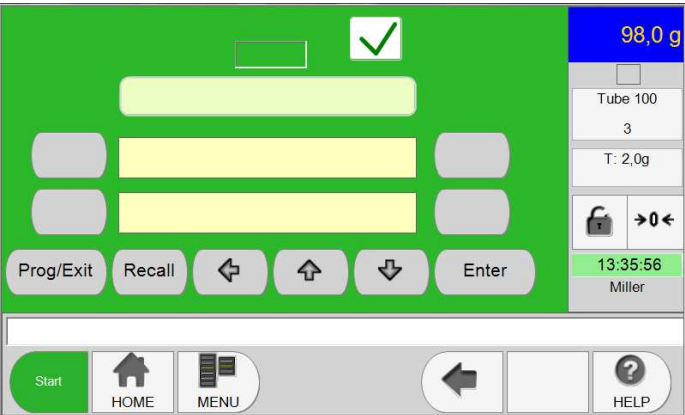
7" terminal The remote display emulates the operating unit of the metal detector. Depending on the version of the metal detector, more or less data can be displayed and in part changed directly.

1. In the **basic screen** touch the lower oval section in the **Items** section.

– Or –

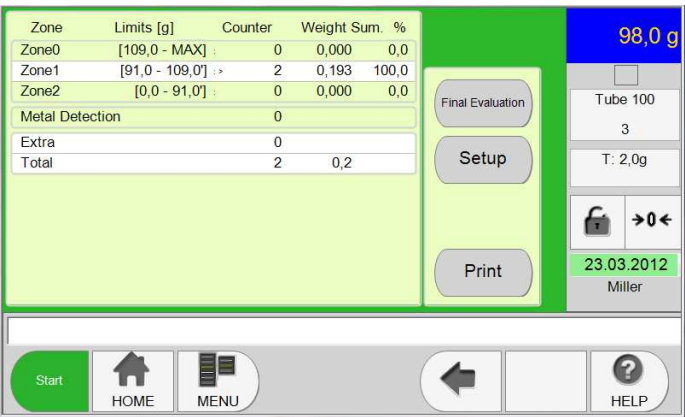
In the **basic screen** touch the menu button  and select the menu items **Setup – General – Metal Detector**.

The following screens are displayed:



Note

In the case of the **Metal Detector** option the counters in the **Zones** screen are supplemented by a counter for the products containing metal (metal recognition):



4.4 Countercheck

A countercheck uses an additional light barrier to check successful ejection of products. It ensures – depending on the setup – correct passing on of the "good" products.

The following types of countercheck that differ in their function and the position of the light barriers exist:

- Countercheck in the GOOD path
- Countercheck before the weight light barrier (WLB)
- Countercheck in the BAD path (Reject Countercheck)

4.4.1 Countercheck in the GOOD path

The light barrier of the **Countercheck in GOOD path** checks whether an unexpected or a "GOOD" product passes the countercheck light barrier.

The light barrier for this countercheck is mounted after the last rejecter to be checked and opens a monitoring window for each product. All the products that are still present on the infeed conveyor after the sorting devices have to pass this countercheck light barrier.

Parameter	Description	
Level (mode)	1. Reject Counter-check	In the standard setting a check is carried out whether a product is actually rejected. If a product that was marked as "to be rejected" is recognized during the product window in the light barrier of the countercheck, this fact is signaled.
	2. Good & Bad Product Check	In addition to the Reject Countercheck a check is carried out whether a product is actually located at the expected position in the GOOD path.
	3. Total Flow Check	In addition to the Good & Bad Product Check a check is carried out between the product-specific check windows whether a product has been added or removed before the countercheck.

4.4.2 Countercheck before the WLB

The light barrier of the **Countercheck before the WLB (weight light barrier)** checks whether an unexpected product passes the countercheck light barrier or whether a product is missing. This type of countercheck is only possible for the version with weighing terminal 15" (XS).

The light barrier for this countercheck is typically the weight light barrier, but an additional light barrier can also be used. It is mounted after the last rejecter to be checked and opens a monitoring window for each product. All the products that are still present on the infeed conveyor after the sorting devices have to pass this countercheck light barrier.

Rejection before the WLB

Parameter	Description	
Level (mode)	1. Reject Counter-check	In the standard setting a check is carried out whether a product is actually rejected. If a product that was marked as "to be rejected" is recognized during the product window in the light barrier of the countercheck, this fact is signaled.
	2. Good & Bad Product Check	In addition to the Reject Countercheck a check is carried out whether a product is actually located at the expected position in the GOOD path.
	3. Total Flow Check	In addition to the Good & Bad Product Check a check is carried out between the product-specific check windows whether a product has been added or removed before the countercheck.

Rejection after the WLB

Parameter	Description	
Level (mode) Function depends on the ejecter position	1. Reject Counter-check	No function. If a product that was marked as "to be rejected" is recognized during the product window in the light barrier of the countercheck, this fact is signaled.
	2. Good & Bad Product Check	A check is carried out whether a product (irrespective of whether "good" or "to be rejected") is actually located at the position of the countercheck. In case of an error, it is signaled as "missing".
	3. Total Flow Check	In addition to the Good & Bad Product Check a check is carried out whether a product was added between the synchronous light barrier and the WLB or light barrier of the countercheck. In case of an error, "Product too much" is signaled.

4.4.3 Countercheck in the BAD path (Reject Countercheck)

The **Reject Countercheck** checks whether a product to be rejected passes this light barrier within the set time slot and thus successful rejection can be acknowledged. Optional an interruption can also be caused by an unexpected product.

The light barrier is located in the catch bin of each rejecter for rejected products. If the input is passive for longer than two seconds while the drives are running (cable break or light barrier darkened by product backup), the belt is stopped.

Up to four catch bins can be monitored with this countercheck.

Parameter	Description	
Level	Only Window Control	The Reject Countercheck function becomes active with the rejection and ends when the period for the monitoring window expires.
	Total Flow Check	The function is identical with the Only Window Control setting, but in the period outside the monitoring window the light barrier additionally monitors the catch bin for added products.

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X-Series System Manual Part 7: Interfaces and data communication

METTLER TOLEDO

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Version 1.0	March 2006

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1 Interfaces

1.1 Overview of the interfaces

If the system has to be equipped with an interface that is accessible from the outside, a corresponding connector is located as an extension of the XRTC connection in the bottom of the control cabinet in the region of the cable glands as a rule.

1.1.1 IPC module with 15" weighing terminal (XS)

All the interfaces are located on the IPC unit of the X-Series. Depending on the design this is mounted on the control cabinet door or at a different location within the control cabinet.

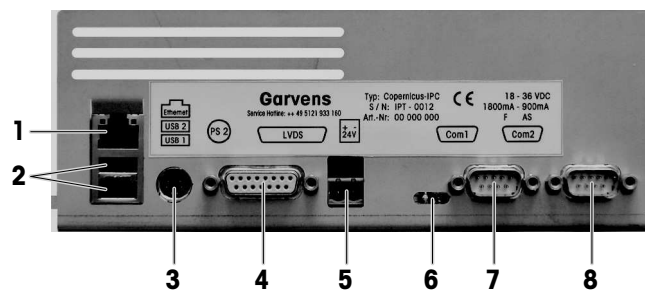


Fig. 1: Overview of interfaces and connections

- | | |
|-----------------------------|-----------------------------|
| 1 Ethernet | 5 24 V DC |
| 2 USB (2x) | 6 LED indicator 12 V/5 V |
| 3 PS2 keyboard connection | 7 Serial interface COM1 IPC |
| 4 HMI (terminal connection) | 8 Serial interface COM2 IPC |

1.1.2 Weighing terminal 7" (XE Widescreen)

All the interfaces are located directly at the terminal in the inside of the control cabinet and can be accessed after the cabinet door has been opened.

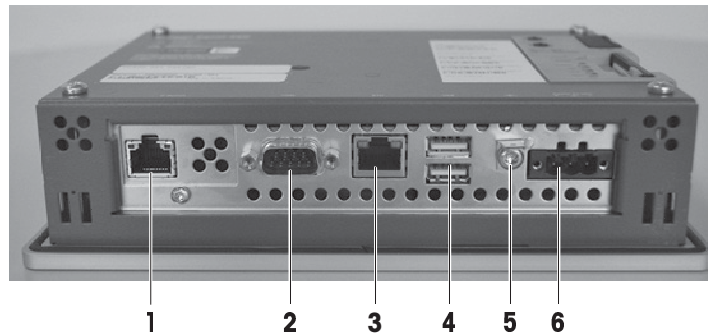


Fig. 2: Overview of interfaces and connections

- | | |
|------------------------|------------------------|
| 1 Ethernet Interface 1 | 4 USB (2x) |
| 2 RS 232 | 5 Grounding connection |
| 3 Ethernet Interface 2 | 6 24 VDC |

1.1.3 XRTC module

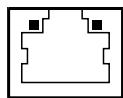
All the interfaces are located directly at the XRTC in the inside of the control cabinet and can be accessed after the cabinet door has been opened.



Fig. 3: Overview of interfaces and connections

- | | |
|----------------------|------------------------------|
| 1 USB (only service) | 3 Serial interface COM1 XRTC |
| 2 Ethernet (2x) | 4 Serial interface COM2 XRTC |

1.2 Ethernet

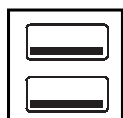


If the weighing unit is equipped with an Ethernet interface, the corresponding plug and socket are normally located on the floor of the switch cabinet among the threaded cable connections as an extension of the IPC Ethernet connection with the designation X20.

The Ethernet interface is accessible without opening the switch cabinet and is additionally protected by a cover when not in use.

A link is indicated by a steady illuminated yellow LED, data transfer (active) by means of a green LED (flashing during data transfer).

1.3 USB



Both USB interfaces (USB1 and USB2), which function identically, comply with the USB 2.0 specification and are located on the X-Series weighing terminal in the control cabinet.

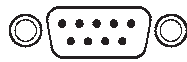
If more USB connections are required, a USB connection can be extended by using a USB hub. The technical design of this hub is the responsibility of METTLER TOLEDO Garvens.

1.4 PS2 keyboard connection (only 15" terminal)



A standard external keyboard can be connected to the X-Series IPC for servicing purposes. A USB connection can be used alternatively.

1.5 Serial interfaces COM1 and COM2 or COM



The 15" terminal has two serial interface connections (COM1 IPC and COM2 IPC), the 7" terminal one serial interface (COM) for the data output and device connection.

In addition further interfaces are available on the XRTC module (COM1 XRTC, COM2 XRTC).

The factory version of the serial interface at the 7" terminal (COM) is always V24/RS232C and cannot be converted.

The interface adapters "COM1" and "COM2" were equipped customer-specifically for the required interface type. If no specification was made, no interface is equipped.

Several interface types are possible at the 15" terminal and in the XRTC module, depending on the equipment used:

- V24/RS232C interface with or without handshake lines, with a maximum transmission length of 10 m
- CL20 interface (line current 20 mA) active or passive, with a maximum transmission length of 1000 m
- RS-422-A interface with a maximum transmission length of 1000 m
- RS-485 interface with a maximum transmission length of 1000 m

Note

All distance specifications are based on suitable cables and cable routing.

1.5.1 Configuring an interface

Note

It is imperative that the cable shielding be connected to the connector housing (metal surfaces) when the connector is mounted so that a low-impedance contact is ensured when the connector and socket are screwed together.



Customer-specific configuration	The interface is configured customer-specifically on the basis of the following parameters. The basic factory settings, in as far as not agreed otherwise, are highlighted: Baud rate: 1200, 2400, 4800, 9600 or 19200 bauds Parity: even, odd, none Stop bit: 1, 2 Data bits: 7, 8 Note In the case of data transfer without handshake lines do not connect Contacts 7 (RTS) and 8 (CTS).
--	--

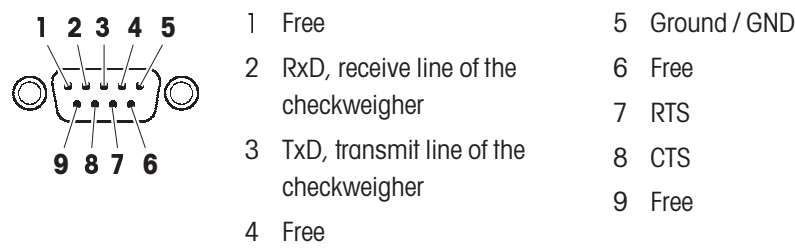
1.5.2 Interface connection

Self-made cables have to fulfill the following specifications:

- Shielded
- Twisted paired
- Cable resistance <125 Ohm/km
- Line cross-section >0.14 mm²
- Cable capacity <130 nF/km

COM, COM1, COM2: D-Sub, 9-pin (male). Suitable counterpart: D-Sub 9-pin (female).

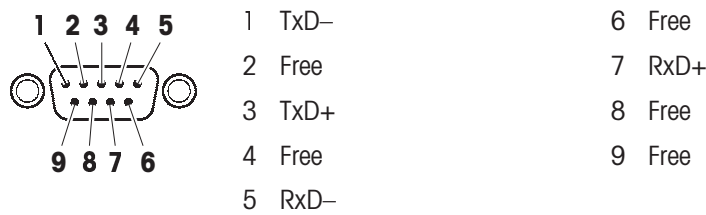
RS232C with handshaking lines	Note In the case of data transfer without handshake, do not use Contacts 7 (RTS) and 8 (CTS) in the connector.
--------------------------------------	---



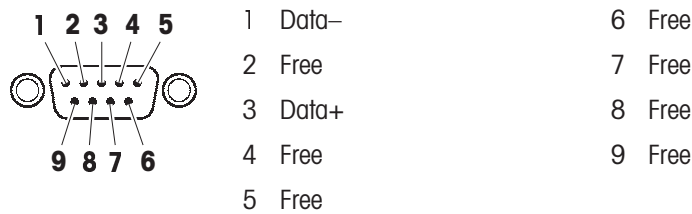
CL20 interface (line current 20 mA) D-Sub, 9-pin (male). Suitable counterpart: D-Sub 9-pin (female)



RS-422-A interface D-Sub, 9-pin (male). Suitable counterpart: D-Sub 9-pin (female)



RS-485 interface D-Sub, 9-pin (male). Suitable counterpart: D-Sub 9-pin (female)



2 Selection of the data formats

2.1 Serial interface

Note

The length of the package name amounts to at least 10 characters. Shorter package names are filled with blanks up to 10 characters. However, depending on the customization the length of the package name can amount to up to 20 characters.

2.1.1 Formats of the data output of weight data

Depending on the format (Formats No. 1 – 8) selected in the interface configuration, the character string is structured as follows:

Note

In special cases deviating customized formats are also possible.

Format 1: (STX)...(ETX) with package name

The character string consists of at least 22 characters.

Start	Article name	Weight	Unit	End
(STX)	XXXXXXXXXX	XXXXXXX	XXX	(ETX)

Field	Description
Start (STX)	1 character: (hex)02
Article name	10 characters, left justified
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (ETX)	1 character, (hex)03

Example: (STX)COFFEE→→→→500.00g→(ETX)

Format 2: (STX)...(ETX) without package name

The character string consists of 12 characters.

Start	Weight	Unit	End
(STX)	XXXXXXX	XXX	(ETX)

Field	Description
Start (STX)	1 character: (hex)02
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (ETX)	1 character, (hex)03

Example: (STX)→→0.512kg→(ETX)

**Format 3: (CR)(LF)
with package name**

The character string consists of at least 22 characters.

Article name	Weight	Unit	End
XXXXXXXXXX	XXXXXXX	XXX	(CR)(LF)

Field	Description
Article name	10 characters, left justified
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (CR)(LF)	2 characters, (hex)_0D, 0A

Example: COFFEE-----1.2g--(CR)(LF)

**Format 4: (CR)(LF)
without package
name**

The character string consists of 12 characters.

Weight	Unit	End
XXXXXXX	XXX	(CR)(LF)

Field	Description
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (CR)(LF)	2 characters, (hex)_0D, 0A

Example: -----50g--(CR)(LF)

Note

The output formats 5 to 8 contain the weight zone. The zone is identified as follows:

- OK "Accepted" zone (meaning "good" products)
- First (inner) underweight zone
- + First (inner) overweight zone
- – At 5 zones: Second (outer) underweight zone
- ++ At 5 zones: Second (outer) overweight zone

**Format 5: (STX)...(ETX)
with package name and
classification**

The character string consists of at least 24 characters.

Start	Article name	Weight	Unit	Zone	End
(STX)	XXXXXXXXXX	XXXXXXX	XXX	XX	(ETX)

Field	Description
Start (STX)	1 character: (hex)02
Article name	10 characters, left justified
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
Zone	2 characters, right justified and with leading spaces (OK, -, +, --, ++)
End (ETX)	1 character: (hex)03

Example: (STX)COFFEE---500.00g--OK(ETX)

**Format 6: (STX)...(ETX)
without package name, with
classification**

The character string consists of 14 characters.

Start	Weight	Unit	Zone	End
(STX)	XXXXXXX	XXX	XX	(ETX)

Field	Description
Start (STX)	1 character: (hex)02
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
Zone	2 characters, right justified and with leading spaces (OK, -, +, --, ++)
End (ETX)	1 character: (hex)03

Example: (STX)--0.512g--+-(ETX)

Format 7: (CR)(LF) with package name and classification

The character string consists of at least 24 characters.

Article name	Weight	Unit	Zone	End
XXXXXXXXXX	XXXXXXX	XXX	XX	(CR)(LF)

Field	Description
Article name	10 characters, left justified
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
Zone	2 characters, right justified and with leading spaces (OK, -, +, --, ++)
End (CR)(LF)	2 characters, (hex)_OD, OA

Example: COFFEE-----1.2g----(CR)(LF)

Format 8: (CR)(LF) without package name, with classification

The character string consists of 14 characters.

Weight	Unit	Zone	End
XXXXXXX	XXX	XX	(CR)(LF)

Field	Description
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
Zone	2 characters, right justified and with leading spaces (OK, -, +, --, ++)
End (CR)(LF)	2 characters, (hex)_OD, OA

Example: -----50g---+(CR)(LF)

2.1.2 Formats of the data output at multiple-line operation (option)

If the checkweigher is designed as a multiple-line weighing system, the number of the line (1, 2, ...) is included in the character string. This ensures that the weight values are allocated clearly to the respective production line from which it originates. The character string becomes 1 character longer.

This "special length" can – if necessary – only be changed by the after sales-service.

Format 1: (STX)...(ETX) with line number and package name

The character string consists of at least 23 characters.

Start	Line	Article name	Weight	Unit	End
(STX)	X	XXXXXXXXXX	XXXXXXX	XXX	(ETX)

Field	Description
Start (STX)	1 character: (hex)02
Line	"Line number" (1 character)
Article name	10 characters, left justified
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (ETX)	1 character, (hex)03

Example: (STX)2COFFEE-----500.00g--(ETX)

Format 2: (STX)...(ETX) with line number, without package name

The character string consists of 13 characters.

Start	Line	Weight	Unit	End
(STX)	X	XXXXXXX	XXX	(ETX)

Field	Description
Start (STX)	1 character: (hex)02
Line	"Line number" (1 character)
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (ETX)	1 character, (hex)03

Example: (STX)2--0.512kg--(ETX)

Format 3: (CR)(LF) with line number and package name

The character string consists of at least 23 characters.

Line	Article name	Weight	Unit	End
X	XXXXXXXXXX	XXXXXXX	XXX	(CR)(LF)

Field	Description
Line	"Line number" (1 character)
Article name	10 characters, left justified
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (CR)(LF)	2 characters, (hex)_0D, 0A

Example: 2COFFEE-----1.2g--(CR)(LF)

Format 4: (CR)(LF) with line number, without package name

The character string consists of 13 characters.

Line	Weight	Unit	End
X	XXXXXXX	XXX	(CR)(LF)

Field	Description
Line	"Line number" (1 character)
Weight	7 characters, number of subsequent decimal places depending on the configuration (0, 1, 2 or 3), no decimal point if there are no decimal places behind it, right justified and with leading spaces
Unit	3 characters, left justified (g/kg/oz/lb)
End (CR)(LF)	2 characters, (hex)_0D, 0A

Example: 2-----50g--(CR)(LF)

2.2 Data communication via the Ethernet interface

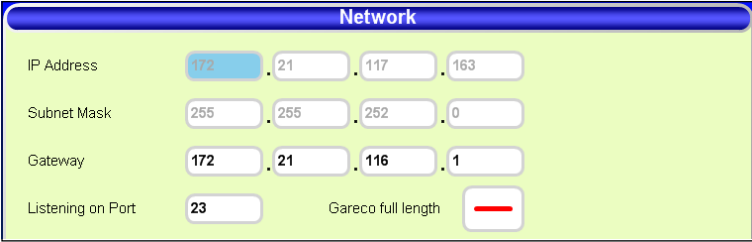
The Ethernet connection provides several possibilities for sending data to the checkweigher or for calling them from the checkweigher via the Intranet.

There are some predefined applications that use the Ethernet connection. ProdX, Freeweigh.Net, Garvens LoginServer and Garvens ReAcT have to be mentioned first here. To set this up, certain parameters only need to be entered on the checkweigher once. For situations where the data delivered needs further processing, for example, weight data or GARECO.Net you need to understand how transmitting data via Ethernet and TCP/IP works in principle.

2.3 Checkweigher configuration

2.3.1 Basic settings

In order to set the checkweigher up as a participant on the network, the unique network parameters need to be entered. These values should always be supplied by the network administrator. The data in the following figure are only an example!



Network			
IP Address	172	21	117 . 163
Subnet Mask	255	255	252 . 0
Gateway	172	21	116 . 1
Listening on Port	23	Gareco full length ☐	

Network services are only available if the options GARECO or "Weight data via Ethernet" are active.

Once the TCP server has been started, it waits for connection requests from TCP clients via the port that has been entered for "Listening on Port:". Any value can be assigned. Note, however, that all values smaller than 1023 may conflict with default network services. The value 23 is pre-set and safe since the default service "Telnet" is based on this port number.

Note

After changing the values for "IP address", "Subnet Mask" and "Listening on Port", you need to restart the checkweigher!



You can try out the options "Weight data" and "GARECO" by using the Telnet utility without having to write your own programs.

2.4 Testing Ethernet using Telnet

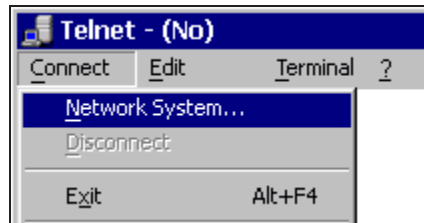
Put simply, Telnet is a text window or a test-oriented program with which another computer (host) in the network can be controlled remotely by the user. All the modern operating systems nowadays dispose of a Telnet client program. The Telnet client establishes a TCP connection to a Telnet server, receives keyboard entries from the user, passes them on to the Telnet server and displays the characters sent by the server on the screen.

The following description applies for the Windows XP operating system.

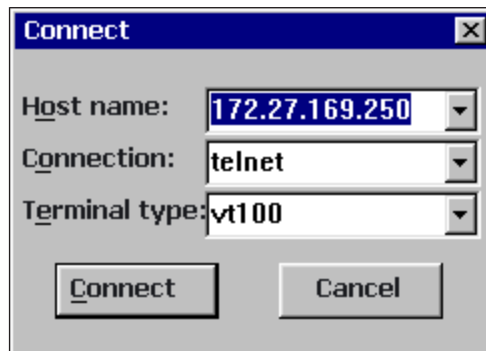
Note

If Telnet is not available directly on your Windows computer, have it installed by your system administrator.

Start Telnet (on MS Windows XP usually under: C:\WINDOWS\TELNET.EXE) and select the menu item "Network system".



You now need the checkweigher IP address. Enter the address in the "Host name" field in the Telnet connection dialog. Since the Telnet program uses an international standardized connection port, you need only enter the value 23 into the "Connect on Port" field on the checkweigher.



The **Connect** action now attempts to establish a connection with the checkweigher over the network. If this is successful, the checkweigher displays the message "Accept: xxx . xxx . xxx . xxx" with the specification of the IP address of the PC. In addition Telnet opens an input window in which you can enter the strings. Telnet transfers every entered character immediately to the server (the checkweigher). It is not possible to correct any typing errors. Use the Telnet help function in order, for example, to set the local echo. You are now ready to start transmitting weigher data.

2.5 Receiving weight data via TCP

- Course**
1. Establish a connection.
 2. Set protocol type, if it is different from the default setting.
 3. Set protocol format, if it is different from the default setting.
 4. Start transmission.
 5. Stop transmission.
 6. Test connection.

(SPACE) = Space, ASCII HEX 20h

(CR)(LF) = Carriage Return, Line Feed (ASCII HEX 0Dh 0Ah); for Telnet: "Enter" key

- Establishing the connection**
1. Establish a connection.

See the previous chapter.

- Setting the protocol type**
- The protocol type defines which weight value from the checkweigher should be transmitted. There are 4 protocol types to choose from.

Note

You only need to set the protocol type if it deviates from the default setting X=2!

2. Transmit the string "**WD_SET_PROT**(SPACE)**X**(CR)(LF)", where X is a value from the following list:

X	Protocol type
2	Transmission of the current weight value (default)
3	Transmission of the current weight value, but only for accepted (non-rejected) products
4	Transmission of a mean value after every weighing. The weight that is also displayed in the left-hand gauge of the basic screen is transmitted.
5	Transmission of the mean value across the last n products, whereby n can be entered at the checkweigher. A transmission only takes place every n products.

Setting the protocol format There are also 4 protocol formats to choose from. After setting the "what", now set the "how" of the transmission. The protocol format determines the string pattern used to transmit the weight data.

Note

You only need to set the protocol format if it deviates from the default setting X=4!

3. Transmit the string "**WD_SET_FORMAT**(SPACE)**X**(CR)(LF)", where X is a value from the following list:

X	Protocol format	Total characters
1	(STX); 10-char article name; 7-char weight; 3-char unit; (ETX)	Min. 22
2	(STX); 7-char weight; 3-char unit; (ETX)	12
3	10-char article name; 7-char weight; 3-char unit; (CR)(LF)	Min. 22
4	7-char weight; 3-char unit; (CR)(LF) (default)	12

Starting the transmission 4. Transmit the character sequence **WD_START**(CR)(LF)".
For every subsequent product, the transmission is immediately performed based on the set type and format.

Stopping the transmission 5. Transmit the character sequence "**WD_STOP**(CR)(LF)".
The transmission is stopped.

Testing the connection One characteristic of a TCP connection between the TCP server and the TCP client is that the client cannot automatically determine whether the server may have terminated the connection. For this reason, the client can test whether the connection still exists.

6. Transmit the character sequence "**WD_TEST**(CR)(LF)".
If a connection exists, the checkweigher immediately transmits "**WD_OK**(CR)(LF)" back.

Sending weight data immediately In this case transmitting of weight data begins without a start command immediately after the TCP/IP connection has been established. Format and content are specified on a configuration page in the checkweigher.

2.6 GARECO via TCP

1. Establish a TCP connection to the TCP Server of the checkweigher, for example via Telnet as described in the beginning.

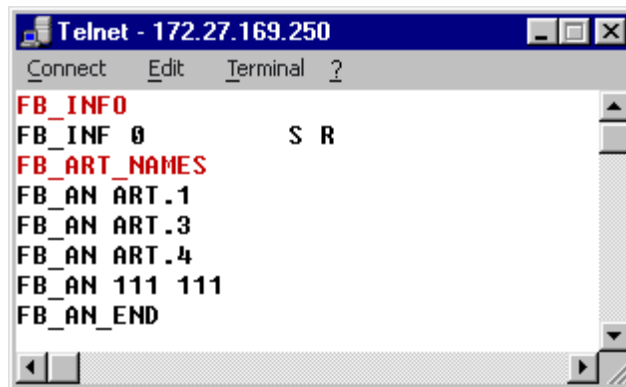
The TCP Server for GARECO is non active and analyzes all the incoming characters.

2. Now send the GARECO commands to the checkweigher.

You receive the response immediately via the same connection.

If, for example you send FB_INFO(CR)(LF) you receive the response FB_INF xxx (CR) (LF) in the Telnet window.

Information about further commands is available in the GARECO instructions.



2.7 OPC Server (option)

The optional OPC Server allows communication between an X-Series checkweigher and other automation system under application of the OPC-DA specification 2.05A. The OPC Server is designed for data communication networks that have interfaces to SCADA/HMI control computers.

The checkweigher always operates on an OPC Server. This ensures that some data of the checkweigher are visible for an OPC Client and can be processed further in the OPC systems.

Note

Gareco.NET, FreeWeigh.NET or other interface protocols cannot be used via OPC.

Two checkweighers cannot communicate directly with each other via OPC. A separate OPC Client is required for direct communication.

2.8 Fieldbus system (option)

The fieldbus interface (FIM) is an option for communication between a checkweigher of the X-Series and other automation systems under utilization of one of the following automation fieldbuses:

- PROFIBUS
- Ethernet/IP
- DeviceNet
- ControlNet
- Modbus/TCP

The following information can be transferred:

- Individual weights
- Production reports
- Package changeover
- Line integration
- "Checkweigher ready"
- "Checkweigher running"
- Emergency-stop
- Emergency run
- Conveyor start/stop commands.

Further possibilities of each interface are described in the respective separate interface manual.

Note

Gareco.NET, FreeWeigh.NET or other interface protocols cannot be used via fieldbus.

Two checkweighers cannot communicate directly with each other via fieldbus, but only via a separate fieldbus master.

X-Series System Manual Part 8: Spare Parts List

The logo graphic consists of a series of parallel diagonal lines that create a sense of depth and movement, forming a stylized 'M' shape that underlies the company names.

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X-Series System Manual Part 9: Wiring Diagrams

The logo graphic consists of a series of parallel diagonal lines that create a sense of depth and movement, forming a stylized 'M' and 'T' shape.

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X-Series System Manual Part 10:

Appendix

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X-Series System Manual Part 11: Additional Operating Instructions (if applicable)

The logo graphic consists of a series of parallel diagonal lines that create a sense of depth and movement, forming a triangular shape that points towards the bottom right.

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